

# SUPPLEMENT.

## The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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### Original Correspondence.

#### MINING NOTES FROM NORTH WALES.

There is now every appearance that the present year will be a very important one, so far as regards lead-mining in North Wales, and have a marked effect on operations for some years to come. Great success which has attended the working at the Van has led to a desire amongst capitalists to invest in mines in districts which have borne a good reputation, and to the taking of private concerns where there is a fair prospect of increased outlay meeting profitable returns. Several new ventures are in the course of being entered into, whilst a number of mines suffering from a plague of water—a disease that has cut short the life of many a promising mine in the northern part of the Principality—are likely to be saved out by means of powerful machinery. The Van still retains its position, and is in the van of paying mines, and scarcely ever has an outlay of 50,000*l.* shown such returns in so short a time. As it is expected after such a success, the district around Llanidloes promises to become a very active one indeed, and the development of the minerals pushed forward energetically. With regard to the Van, it is worthy of notice that whilst the quantity of ore realised in 1870 was 2260 tons, it had increased in 1871 to 4525 tons, and last year the returns will at least show an increase to the same extent. With a less number of mines than there are in Cardiganshire and Flintshire, the county of Montgomery distances them in the quality of ore being raised.

The neighbourhood of Mold, which may be said to be one of the leading centres of lead mining, there is every appearance that all of the mines abandoned some years since will be opened out by means of English capitalists, whilst those in operation are going favourably.

The North Hendra Mines are being successfully worked, and the discoveries of ore have been fully maintained. Workmen are engaged through solid ore in the direction of the new shaft, which is expected to be communicated with from the other workings about three months time. It has been estimated that during the year something like 1000 tons of ore will be sent to bank. The mine now looks remarkably healthy, and will rank amongst the successful in the county, and has been valued by competent persons at 80,000*l.*

There is every appearance that the Rhosmor Mine will be at work before long, operations having been partially suspended owing to water increasing to a very large extent during the past week. A certain indication that active operations are intended. Shareholders, who have long been waiting for the appearance of a dividend, will be gratified, no doubt, before the close of the year, mine is a really valuable one, there being five lodes running parallel to each other, containing large quantities of good ore.

Belgrave Mine is still standing, but hopes are entertained that it will shortly be taken to and worked. It was formerly a very valuable mine, and drained to a depth of 200 yards by adit levels. Change has taken place as yet with regard to the Maes-y-Safn company being to all intents dissolved. All the liabilities have been discharged, and the machinery taken away.

Mold Mines, formerly the Old Cathole, are looking very well, and to some extent suffering from too much water, an affection which is common to many other mines in the neighbourhood of Mold. The mine is now turning out from 25 to 30 tons of ore monthly, a quantity which will be increased before long.

Llanarmon a splendid lode east and west has been met with 66, about 3 ft. wide. Owing to an accident to the machinery the mine has been suspended for a few days. Work, however, is expected to be resumed before the close of the week, when the mine will be operated upon with increased vigour. The mine has been inspected by two well-known gentlemen, Mr. Prior and Mr. Aldy, who have reported most favourably of the prospects of the property. The engine-power has been found to be sufficiently good for all purposes, and everything now is looking very prosperous.

Britannia Mine, an old one, but not worked of late years, is to become once more a paying concern. Offers of a very liberal character have been made on the part of a small limited company to take it from the owners. Good ore, and in considerable quantities, was formerly obtained from the mine, which lies central in the Great Maes-y-Safn and the Llanarmon, the former of which has paid in dividends upwards of 300,000*l.*, and the latter 100*l.* The position of the Britannia is a remarkably good one, being natural drainage to a depth of 100 yards.

At Denbigh a valuable discovery of lead has lately been made. It was found in the rock overlooking St. David's Church and the school, which leads from Castle Hill to what is known as the Goblin Well. The discovery is likely to be of considerable advantage to the town.

In Denbighshire the leading mines, including the Minera, appear to be doing well, whilst taking the entire of the Principality, the prospects of the present year are most cheering, and the output of ore will be much larger than for several years past. We may say that the entire tonnage of lead ore realised in North Wales in 1870 was 27,054 tons, against 27,035 tons in 1869. Of zinc the quantity reached in the northern part of the Principality in 1870 was 6709 tons, valued at 33,290*l.*

### THE MINES INSPECTION AMENDMENT BILL—No. V. TO THE EDITOR OF THE MINING JOURNAL.

SIR,—When the Secretary of State introduced this Bill, by which he will justly earn either great renown or great discredit, he said it seemed to him that "colliers had the same right to protection as travellers by railway or by ships." If that be his opinion, it may be asked why does he not propose to extend it to them? This is a question that will be asked, and a satisfactory reply demanded, not only by colliers but by all engaged in dangerous occupations; and they will think it far from a satisfactory explanation that travellers belong chiefly to the class by whom, and for whose benefit, laws are made, while those engaged in dangerous work are the class by whom they are not made, but upon whom they are imposed. Such explanation, however, would be not only unsatisfactory but untrue. It is not the law itself that differs in the two classes of cases, but its application. Passengers when injured do not themselves generally contribute to produce the injury, but suffer from the negligence of others, most frequently of the servants of those who, by implied contract, engage to convey them, or have them conveyed, with all due care. Workmen when injured suffer generally, either wholly or in part, if not from their own from their fellow-servants' carelessness. The practical effect being that travellers most frequently succeed, while workmen most frequently fail, in obtaining compensation for injuries suffered, even for those which certainly would not have been suffered, if the employer had not neglected, or allowed to be neglected, precautions not only well known to be essential to safety, but which the law specially directs shall be observed by him.

The law, therefore, though impartial in theory, is most unjustly partial in practice. Whenever a railway passenger is injured in consequence of any (the slightest) neglect from any cause of danger removed, however obscure or unsuspected, the sufferer is entitled to full compensation, not only for money loss, but for pain, danger, and anxiety; but if a pitman be injured from the culpable or even criminal neglect by his employer of some precaution which he is liable to penalty for having neglected, no compensation to the sufferer is secured, unless the injury has resulted exclusively from such neglect as can but rarely be proved. The practical effect of this great difference is that railway travelling has become wonderfully safe, while mining continues to be frightfully dangerous; that whereas only 30 railway passengers were killed in 1866 (the last year for which I have the return), 1484 coal miners were killed that same year, and while the average loss of lives per annum for 20 years has been 1063. Now, though there is no probability of miners ever being so effectually protected as railway passengers are from danger, it is very certain that if they were secured compensation for injuries really, though not exclusively, caused by their employers' negligence the number of fatal accidents would be greatly reduced, probably to less than a third of their present frequency; and it is as certain that they will not be reduced in anything like the same proportion, unless by the plan suggested, or by some analogous enactment, it is made the owners' direct and immediate interest that they shall be reduced.

This conviction is not based upon any belief or suspicion that mineowners are less humane than other men. It would be absurd to suppose so; but, as I have before said, needy coalowners cannot afford to pay for costly precautions unless their rivals in the trade adopt them also. Costs of coal getting, which all must incur, become additional to its price, and are paid by the consumers, if small, without perceiving it, costs which humane coalowners incur, which others less cautious or conscientious avoid, are losses to those who incur them. It is, therefore, only simple justice to the humane owners, as well as to the pitmen, that all precautions essential to safety shall be enforced upon all, and they can be best enforced by making it very costly to neglect them. Can it be doubted what is the duty of Members of Parliament to do in this matter, or of their constituents to require from them?

I do not expect, or even wish, that mineowners should be exposed to the risk of such extortionate damages as are often awarded against railway companies. Juries are often urged by thoughtless newspaper writers to award what they call exemplary damages, to teach directors that it is cheaper to avoid accidents than to pay for them; in fact, to punish the proprietors because it is suspected what is seldom proved, and is *prima facie* improbable, that foreseen dangers have not been guarded against. A jury sworn a true verdict to give according to the evidence is perjured, if they give damages in excess of the injury to punish supposed wrong doers, and have no wish that mineowners should be exposed to such injustice; but would it be so to render mineowners peculiarly responsible for losses resulting from accidents arising, not from unforeseen and unsuspected causes, but from the proved neglect of the owner of specific precautions he is liable to penalty for not observing, it being also proved that the injury could not have been suffered had he not been guilty of such cruel and criminal neglect. If Mr. Secretary Bruce acts upon his own declaration, that colliers ought to have the same protection as railway passengers, he cannot refuse the protection asked for, thus carefully guarded from excess or abuse, which that given to railway passengers is not. To promise it, and to leave it clogged with conditions that render it inoperative, would be to act like those "juggling fiends, who keep the word of promise to the ear, but break it to the hope."

It would, I think, be highly expedient, and not unjust, to place a limit upon the maximum amount of compensation to be awarded, as has been done in the closely analogous case of factory accidents. When a worker in a factory suffers bodily injury in consequence of machinery shafting being (contrary to law) left unenclosed, the owner

is liable on conviction to a penalty of 100*l.*, the whole or part of which may be paid to the sufferer. If I were in Parliament I would propose that "If anyone suffer personal injury, from which he would not have suffered had not some precaution directed by law to be observed or enforced by the mineowner been neglected, such owner shall be liable to a penalty of 100*l.*, or 200*l.* if the sufferer be killed, the whole or part of which to be paid, or invested for the benefit of the sufferer or his family." The effect of the limitation would be to stop actions of mere litigation for costs, to check extortion, and to enable mine owners to shelter themselves from possible ruin by ensuring against definite which they could not do against indefinite loss.

The effect of insurance would be to secure a new and most efficient form of inspection—that by the officers of the insurers, who could not afford to neglect strictly enforcing whatever will diminish their risks, which they could do by raising the premium of insurance unless the prescribed precautions are fairly observed. I would not propose that the insurance of miners should be compulsory, because compulsion would be quite unnecessary, for a mineowner whose pitmen were not insured would be unable to get credit; no merchant would accept his bill, and bankers would not allow him to overdraw unless he was sheltered from the possibility of ruinous compensations. Insurance of miners against special risks would become universal against all risks from injury general, greatly to the benefit of all concerned; dangers would be far more effectually and carefully guarded against, injuries from them far less frequent, many hundred lives a year must be saved, and the misery caused by those accidents and deaths that were not prevented, would be greatly alleviated at the cost of adding to the price of coal the amount necessary to pay for insuring against the losses suffered in procuring it. Next week I hope to show how very small in proportion that cost need be.

PHILO.

### ACCIDENTS IN COAL MINES.

SIR,—To render accidents in coal mines impossible is not in the power of coalmasters or any other class of men, therefore, I venture to say, cannot be anticipated; and the only way to prevent accidents by explosions is by great care and watchfulness, but where mines are subject to sudden outbursts of gas and blowers, with the present imperfect safety-lamps, even with the best arrangement and ventilation, and greatest vigilance and attention, explosions may occur.

Explosions from other causes than the above are, in my opinion, preventable, although such continue to occur, and all that is necessary to accomplish this is good and efficient mechanical ventilating power, properly and judiciously applied, on the ascension principle, with well-regulated management, good discipline, and obedience to the rules by the workmen themselves. If those simple instructions were attended to, the reform of the disastrous and unsatisfactory state of our colliery management would not be so difficult after all, for all the means of obtaining this are well known, and the requirements (although various) to keep all places free from accumulations of gas are well understood. I do not consider those preventable explosions occur really from want of knowledge in colliery management, or the want of means for thorough ventilation, but simply from not enforcing better observance and precaution, with forethought and firmness, on the part of the subordinates in charge, and carefulness and obedience on the part of the workmen themselves. There are only two sources from which danger of explosions may be expected with which it is difficult to cope—sudden outbursts of gas, or blowers, and the accumulations of stagnant gas in the goaves. The only protection against the former is the safety-lamp; and I do not think it possible or practicable that any method in connection with the ordinary ventilation can be adopted by which the stagnant gas can be removed from the goaves, which are formed and must exist more or less under any system of working; but compressed air might be applied for ventilating the goaves, and forced into them at the lowest point possible, the return air-road being at the highest point; or exhaustion might also be applied at the highest point. Either of these two methods, or both, applied independently of the ordinary ventilation, would greatly reduce the quantity of gas, and, of course, the danger from that source; but for the purpose of better enabling us to prevent those fearful explosions, which are so frequently occurring, we must first ascertain the real cause, for, in my opinion, the origin of more than two-thirds of colliery explosions is never discovered, the loss of life occasioned and the disarrangement caused by their occurrence destroying the possibility.

I will, therefore, in a few plain practical observations endeavour to explain what are, in my opinion, some of the principal causes of the preventable explosions that have occurred, and the causes of which have never been properly and satisfactorily ascertained.

In the first place, we are led to understand that all the officials in charge of the underground operations of a colliery use their utmost endeavours to prevent explosions, as well as accidents from other causes, but are the public convinced that such is the fact? I venture to say, No; and it is my firm opinion that whenever an explosion takes place in a colliery through any cause except a sudden outburst of gas, or a second fall in the goaves, there are some in authority who are well aware of the possible and probable occurrences before such really do take place—that is, if by any defect in the ventilating arrangements an accumulation of gas exists, or is going on, in any of the working places, or in the immediate neighbourhood of the workings, it is well known to some of the officials in charge, who, instead of stopping all work in that district till the gas is removed, or otherwise made safe by some other means, for want of a little more forethought and firmness still allow the daily operations to go on as usual, no doubt trying to remedy the defect in the meantime, till an explosion is the consequence, and the parties above referred to perhaps killed, the general arrangements destroyed, the true cause never ascertained, and thus ends the matter.

Another cause to which I attribute some of those distressing explosions is the abuse of the "Geordie," or Stephenson's safety-lamp, which is in extensive use in some of our large collieries, where large quantities of gas are generated, the ventilating power and currents of air in circulation, perhaps, good in some parts, but unhappily, through some defect, not properly distributed in other parts. The lamp is given into the hands of ignorant men, by which they are to perform their daily operations, and with the instructions and understanding that if there should be explosive gas present the lamp would cease to burn. Now, this is not always the case, not through any defect in the lamp itself—neither will I attempt to dispute the results obtained at the trials and experiments to which the Stephenson



as well as a number of other lamps were submitted, but merely to show by experience that in thick seams of coal, where but a very small quantity of air is in circulation, the upper parts of the workings are at times charged with explosive gas, and yet the lamp continues to burn while kept near to the floor of the mine. Thus I have known men continue to work day by day with an accumulation of explosive gas immediately above their heads, and just above the top of the lamp, ready to ignite any moment should any mishap occur—that is, the upper part of the actual working places entirely charged with an explosive mixture, ready for the match.

The next cause of preventable explosions that I shall notice is what is frequently termed at Coroners' inquests the carelessness, or recklessness, of the unfortunate workman, having tampered with his lamp, perhaps trying to light his pipe, or he had struck a match for that purpose, and the gas had ignited. Now, in my opinion, those conclusions are as far wrong as it is possible to be; not but workmen do at times act very recklessly, apparently regardless of both life and property, nevertheless the above conclusions are calculated to greatly mislead the inexperienced in mining matters, for by such admitted evidence must be established the impression, as a fact, that the ordinary working places of all colliers who work in a fiery mine must be continually filled with a mixture of inflammable gas, ready at any time to ignite; but such is really not the state of things in ordinary practice, the ventilating current of a fiery mine, giving off small quantities of gas in hundreds of different places, must certainly be contaminated, but if proper ventilation be applied to carry away the gas as it is being generated the circulating current will only become explosive by some defect in the arrangement, or a sudden evolution of an extraordinary quantity of gas. Then, I ask, why should a workman be working in, or even allowed to go into or near (even with the best of safety-lamps), a place known to contain explosive gas? Why should an official send him into such a place? For no place is fit for the workman to go into if the gas will ignite in the lamp when the examinations are being made; consequently, I say, the fault rests with those in authority who send the men to work in such places, and not with the unfortunate or reckless workman, for it is the duty of all officials not only to prohibit the workmen from working in such places, but to see they are properly fenced off, so that no one can go there by mistake. If any part of the workings of a colliery be in such an explosive state (although the same may be worked entirely with locked safety-lamps) that the gas will ignite at any time during working hours, such places are not fit for any workmen to be in.

The present class of safety-lamps was never intended for anyone to work with day by day in any place containing, and surrounded by, an explosive atmosphere, capable of being ignited at any moment should there by any cause be a naked light. The proper use of the safety-lamp is for the purpose of enabling anyone to test the workings, to see and to ascertain with safety if explosive gas does exist in any part of the mine, to explore any place considered dangerous, and for protection to men working in places where explosive gas may be expected to be given off in large quantities, but not for men to continue to work with in any place after having been examined and gas found already to exist in sufficient quantities as to ignite at the lamp.

The next cause of preventable explosions is the blasting with gunpowder for the purpose of getting down the coal. This is a very important point, as several of the recent explosions have been attributed to this cause alone, whether justly or not I do not pretend to say. My opinion is there ought not to be any explosions from blasting, neither do I think it necessary that blasting should be entirely done away with, except by the introduction of other efficient and safer means; even in mines that give off explosive gas, if proper caution were observed, and that is all that is required in this case, allowing all other arrangements to be in force as here suggested. The workmen themselves ought never to be allowed to charge and fire their own shots, neither ought they to have gunpowder or other explosive blasting material in their possession, for they will not take the necessary precaution to ascertain really the condition of the place before blasting; but if a competent and experienced man be appointed to charge and fire the shots, and to see that the place and the immediate neighbourhood are perfectly free from stagnant gas, blasting with gunpowder might then be done with safety, especially in narrow work or drivings. Some of our mining engineers have of late recommended, by way of caution, that blasting should be done only during the night, and not during the day. If it be dangerous to blast during the day, it cannot be very safe to blast during the night in the same place.

It has also been suggested, with a view of diminishing the number of explosions through this cause, that there should be in the coming amended Mines Inspection Bill a clause included prohibiting blasting entirely where safety-lamps are being used; my conviction is that the proposed amendment will have the contrary effect except some mechanical means can be adopted, or our scientific chemists discover a substitute for gunpowder free from ignition for the purpose of getting down the coal; the difficulty to do so without blasting in some seams of coal will be so great that naked lights will be used where safety-lamps ought to be, for the purpose of being eligible for blasting; therefore, I contend that if such proposed amendment be enforced there will be no diminution of accident by explosions from this cause; I should sooner say they will greatly increase.

In conclusion, I might add that I do not see the possibility of any one particular method or system being adopted, neither can legislative interference enforce any one specified form by which the peculiar and constantly varying circumstances in the underground operations of coal mines in different districts can be carried on or worked, or even the principle of ventilation, for the latter in a great measure depends on the system of working adopted. If practical men, even of moderate education, were resident at each colliery, to attend daily to the interior of the works and the wants of the workmen, as well as to their discipline—for I firmly believe laxity in discipline to be one of the principal causes of explosions, as well as accidents by other causes—explosions would be of rare occurrence, for real practical men, with some education, are the class we must look to for the remedy; men who know all the details, and all the ins and outs of the interior of the mine. The present class of Mine Inspectors, the mining engineers (proper), and the consulting engineers will never apply the remedy so much needed; besides, it is not part of their duty, as it is only a question of carrying out the details, a part of colliery management that we can hardly say belongs to them, and of which they are expected to have only a theoretical knowledge; having been brought up in college and the mining office it cannot be expected of them. They are all right in their way, to meet, and talk, and suggest after the occurrence, and if any of them should happen to suggest an apparent improved plan the class of men I have above referred to would have to see to the same being carried out in detail. An additional staff of sub-Inspectors of the above class, who would be able to see and know the state of a mine without being first told, would be of service by visiting the various collieries occasionally, not only when there has been an accident, but at other times, which times should not be fixed or known to the colliery authorities.

Feb. 21.

AN OLD PRACTICAL MINER.

## PRACTICAL MINING—TIN DRESSING.

SIR,—I notice in the Supplement to last week's Journal a letter from Mr. John Sprague, of Pendleton, Manchester, in which he strongly advises, and rightly to, a scientific system of classification and direct feeding to buddles and other machinery employed, as the only remedy for the evils in dressing which he refers to. Mr. Sprague speaks of experiments now being made at Dolcoath Mine having the object referred to in view. Now, I daresay Mr. Sprague will be pleased to hear that the experiment has already been made, and has proved a complete success, thereby fulfilling his (Mr. Sprague's) predictions. I wish, however, to inform the mining community that the entire process was patented by me three years ago, and that any direct classification and feeding of buddles, whether rotating or fixed, or long trunks for rough or dead slimes, would be an infringement of my patents. I may also add that the whole is in full work at the Great Darren Silver-Lead Mines, in this county, where may be seen the most perfect system of dressing ores in Great Britain, a fact that

anyone interested in such matters would convince themselves of by a visit.

The system is more especially advantageous for tin and high-priced ores, as practically not a particle of the fine ores need escape, and the whole process is effected by a continuous system direct from the stamps or crusher to the finest slimes. The agent at Dolcoath may, therefore, cease his experiments, and make the needed improvements in his dressing machinery from a perfected working model.

Aberystwith, Feb. 20.

GEORGE GREEN.

## PAYMENT OF MINERS.

I have suggested at different times that those employed in mines whose wages are computed by time should be paid at the end of the month, when it would be as easy to ascertain and pay the sums due as to delay it a month. This would not apply to the tutwork and tribute pares, if the enginemen, smiths, carpenters, and dressing pares were thus paid four weeks earlier than at present. One member of a family may be working by the fathom, or by the quantity of ore raised, whilst the younger ones are paid by the week or month, who would thus take home some cash for present need. This plan has been agreed on in Balmynhear Mine, in Wendon. I calculate that if this mode were adopted in the mines of Cornwall and Devon about 50000*l.* would be paid a month earlier throughout the year. I doubt if the tutwork and tribute men will derive any practical advantage from the abolition of the five-weeks months. I am persuaded that it has not been the general practice to cut the prices in a five-weeks month. It is certain that in some of our deep mines able men have been earning for long periods 5*l.* or 6*l.* per month.

The five-weeks month is not a modern invention. The ancient Egyptians commenced the year when Sirius rose with the sun, but, as each month consisted of 30 days, after 1400 years new year's day had passed through all the seasons. The calendar was reformed probably about 1323 B.C., when the civil months ceased to have reference to the changes of the moon (although the division into weeks seems to have existed from a very early period), and the twelfth month, Mesore, was made a five-weeks month. The Egyptians subsequently corrected the omission of the odd hours. I fear that the miners worked under compulsion, got no extra pay in the five-weeks month, but only more rations. A scribe informs his lord, in a papyrus letter still extant,\* that he had duly supplied the monthly rations to "the Hebrews who drag the stones to the city of the King Rameses." An inscription on the rock at Hammamat, near Cosseir, on the west side of the Red Sea, also speaks of rations for the 800 Hebrews who were working in the quarries at that spot, with 8200 other labourers. There was no *Mining Journal* published at that time in Egypt, but Captain Harur-Ra and others have recorded their doings on the rocks of the turquoise and other mines at Sarabat el Khadim, on the north-western part of the Sinai peninsula. E. H. Palmer and C. F. T. Drake have copied these hieroglyphics, which have been translated by Dr. Birch, of the British Museum. Capt. H. came to the mines in the month Phamenoth (the seventh). "He never left the mines, he invites the authorities to visit them, his face sweated, his blood grew hot, he ordered the workmen daily, the vein will be found in time, and it was so; the vein was found at last, and the mine yielded well." He seems to have carried out one of the impossible conditions of modern mine leases, for he adds that "he did not miss a single vein." In another working the agent says "he employed 15 men daily."

H. E. Palmer found a prop of shittim wood. There must have been a great consumption of wood in the neighbouring smelting works, where there are large heaps both of copper and iron slag. In the Wady Mughareh some mines were worked contemporary with the building of the great Pyramid. The route of the Israelites (in Exodus) left Sarabat el Khadim and the mining population with its numerous guards on the east.—*Trevelyan*. C. FOX.

\* In the Museum at Leyden. † See photograph at Sandford's, Charing cross.

## ON WELSH LEAD AND CORNISH TIN MINES.

SIR,—May I call your attention to a letter you published some time since, when the Van Mine was cut rich. All the rage was then for Welsh mines. I remarked that I had surveyed Welsh mines for a number of years, but I had never found over six genuine dividend-paying mines shown in the Journal at a time, and I think they are now much the same. I also threw out a hint that I thought, under the then ruling price of tin, and the prospects of its continuing, those inclined to speculate had better embark their spare cash in Cornish tin mines. These remarks caused the Welsh mountaineers to rough up their wool, and they were inclined to show fight. I took it all very coolly, and let the case remain open, giving them the chance, with their skill and English capital, to better their condition; but I now discover that Cornish tin mines have swelled your Dividend List ten to one of Welsh lead mines in one year. I do not for a moment wish to depreciate Welsh lead mines, nor to throw them within the shadow of their own hills, but I certainly thought it no harm to give the public a hint as to my views which of the two was the best investment. I think I need now only refer to your Dividend List to discover which holds the balance in hand.

For over 50 years I have known Welsh lead mines, and Cornish tin mines. I knew tin well when I was only seven years old, and I knew that Cornwall contained thousands of shale backs of lodes that contained tin, but not enough, at the then selling price, to pay for raising and carrying from one to five miles on mules' backs to water-power; it would not pay expenses. I have known tributaries to have their tinstuff laid by for two years, unable to get it stamped; they had to take their provisions from shops, and those shopkeepers met heavy losses, and could not remunerate themselves if they advanced over 10*s.* in 1*l.* to the hard-working tributaries. Now, I think, the scale is turned; the fire-stamps are invented, and brought home to everyone's door, if required. I was in Cornwall a few weeks since, when I saw them removing burrows on the hills of a thousand years standing to a fire-stamps now close at hand, and I was informed that 6*l.* of tin to the ton at the present price would pay for working over these old burrows. In that case I know there is in Cornwall thousands of old tin back lodes which will produce from 6*l.* to 20*l.* of tin to the ton. Then, I say what is wanted is capital to erect steam-stamps, but I need not tell the public that a steam-stamp complete is a rather expensive article. I notice a great many parties who have taken up promising and paying sets, but have not the means to erect a steam-stamp, and they are compelled to sell their tinstuff to what is termed "bargain men"; these are men who have a steam or water-stamp of their own. The tinstuff has certainly not to be carried on mules, but often in carts for miles. Now, what would be a paying lode if stamped on the spot would not pay for cartage; in that case they must erect steam-stamps, or the mine must stop.

Then, I contend there is great advantage in working these poor portions of lodes; it is opening out the ground, which often makes good discoveries of paying tin ground. If the poor portions of lodes only paid half the expenses they should be worked perseveringly, if opening promising ground. It is said of a bed-ridden patient that "as long as there is life there is hope," and the same remark may be made of a tin lode. If tin is found in a lode the seed is there sown, and has grown to perfection in some place. It is not so with other ores, as most of them require to produce a large quantity to make a paying mine, but one ton of tin ore is equal to twenty tons of copper, or eight tons of lead. I let these remarks suffice for the present, and turn my attention to fire and water stamps. A tin-dresser remarked to me a short time since that water-stamps were nearly as old as the hills, and a man who stands high as a mining authority said to me a few days ago that he knew of neither record nor tradition showing the origin of water-stamps in Cornwall, and, what is more singular, no man has ever improved upon them, and in that case they appear long since to have been brought to perfection. We are now aware that steam-stamps can be fixed if required at every man's door, and they have only to bring coal to feed them, but, as I said before, it is a very expensive article, and is still a great drawback to the working of poor tin lodes. I contend that man is never too old to learn, and I am not inclined to believe that the Cornish stamps has reached perfection. I think it would become some of those fortunate tin miners who have made money by the late high standard of tin to exert their intellect, and see if they cannot bring

out stamps that can be erected for one-third the cost of the present steam-stamps, do one-third more work, and be worked with one-half the coal; then we can work a poor tin lode to a profit, and soon leave all the Welsh dividend-paying mines hidden in the shade of their own hills.—*St. Teath, Camelford, Cornwall*. N. ENSON.

## THE MINERAL RESOURCES OF IRELAND—CURRAINE ESTATE, &amp;c.

SIR,—In reply to "Ferro," allow me, as a subscriber, to narrate my experiences. Having visited this place, I wish to inform you that the statements of George Davey and other interested persons respecting the existence of hematite iron ore are greatly exaggerated. I will even go further, and say that it appears to me that the carriage and freight alone would render it almost commercially valueless. Vessels may approach, but can rarely get near enough to be of use; indeed, they cannot get out to sea in consequence of the roughness of the Atlantic during five months of the year. YORKSHIRE.

Leeds, Feb. 20.

## "SCIENCE OF INVESTMENT."

SIR,—The rapid advance in value of the several tin mines of Cornwall, and more especially so of those to which I have drawn public attention in my various letters, compels me to pause in directing attention thereto beyond the point or standard at which they have attained. I think these mines have acquired a legitimate value in the market; in fact, I regard Tincroft, Dolcoath, Cook's Kitchen, Carn Brea, West Basset, South Crofty, Basset, South Frances, and a few others I have specially noticed, as sufficiently discounted in current value to withdraw from the field, with due honour to myself, and no reflection up to this date from those who have followed in my wake. There are many mines in Cornwall, which for various reasons I do not enumerate, that are almost wholly neglected by market dealers, yet they possess inherent worth that entitles them, in my opinion, to a first position on the *tapis* in juxtaposition to many companies at present dealt in, and loudly advocated in the arenas of our Stock Exchanges. Who ever heard of the valuable mines in Cumberland, Durham, and the North of England, and many in Wales and Cornwall, as being dealt in upon the London Mining Exchange? Regarding these, we may refer to Cwmystwith, Lisburne, Bwlch, Llangyng, with Par Consols, Phoenix, Owls, Trumpet Consols, Ding Dong, North Pool, and a host of other valuable properties wholly neglected. We have passed through the culminating panic of 1866, the direful ravages of 1867-8, the reviving espiel incipient throughout 1870, and the confidence displayed in the following year, just closed, when action displaced inanity in the various markets; and it became manifest to all that our trade, commerce, and home industries had attained their normal and legitimate channels of interchange and standing in value. In fact, the country was prosperous and progressive, and only a few specks could be discerned on the horizon to complain of. Promently we have the "dodging trickery and bombastic claptrap" of the Americans. The mines of California are all glittering gold and silver coffers of wealth; Nevada had its hills surcharged with the precious metals; and even Utah was as prolific of mineral stores as "Brigham Young's" colony was of "matrons and juveniles."

So much for promises and the efforts of Brother Jonathan to relieve England of her superfluous wealth; but John Bull was "taught to be cautious," and in the "exercise of his discretion paid the Americans as little cash as possible," and only a modicum of shares. The chief advantages were secured to the English promoters, and hence the largesums were only circulated in the Mother Country, and hence in its employment will tend to benefit the active and industrious men of business at home, instead of schemers abroad.

Feb. 12: At Dolcoath meeting for November and December, closing up the year, the returns of tin, &c., amounted to 17,984*l.*, which gave a profit of 7514*l.*, or 41 7-10ths per cent. of the gross yield. The dues were 899*l.*. In referring to my letter of last week, in which it was stated that an "agent" had informed me that with increased facilities of discharge from underground to surface the returns would be raised to 200 tons of tin monthly, I may observe that for the two months in question the yield was 207 tons, which sold at an average price of 86*l.* 7*s.* 6*d.* per ton, from which must be deducted royalty, 4*l.* 6*s.* 9*d.* per ton; tutwork and surface labour, amounting to 476*l.*; and tribute, 1660*l.*; together, 6426*l.*, equal to 32*l.* per ton of tin; merchants' bills amounting to 3027*l.*, (say) another 14*l.* 12*s.* 6*d.* per ton of tin, raising the cost of production to 50*l.* 19*s.* 3*d.* per ton of black tin.

A very considerable portion of this cost is what is locally called "standing charges"—agency, sub-agency, fixed employers, smiths, carpenters, engineers and staff, dressers, pitmen, lumbermen, and numerous other denominations, and to which must be added coals and the wear and tear of machinery, maintenance of plant, and the necessary consumption of materials in a variety of ways, that would not be increased materially in case the returns were brought up to 200 tons instead of 100 tons of tin monthly. I may, therefore, take it as an "hypothesis," if this mine be as rich for tin as the agent informed me, that the outlay of 20,000*l.* to 30,000*l.* in squaring the shafts, and adopting more powerful dressing machinery, is a course greatly to be commended, as the cost of such increased production of 100 tons monthly would not exceed, including dues, 4000*l.*; hence at an average price of 86*l.* 7*s.* 6*d.* per ton, increased gains of 56,250*l.* annually would accrue to shareholders. I observe that Mr. Cartwright was in the chair at the meeting, who is the representative of Mr. Dueset, of Tehidy, the landlord of the mine. I think at times that the interests of shareholders are at variance with those of the lords, and that if Mr. Basset continues on the committee of Dolcoath, a mine yielding according to the last two-monthly audit 107,904*l.* annually, and paying him royalties of 5394*l.* yearly, he should at least attend personally to the business of the company. What would the shareholders in the London and North-Western Railway Company, the London and Westminster Bank, or the Peninsular and Oriental Steam Navigation Company say if their chairman became represented by a land steward, and the cheques signed and the business of the proprietors transacted by deputies?

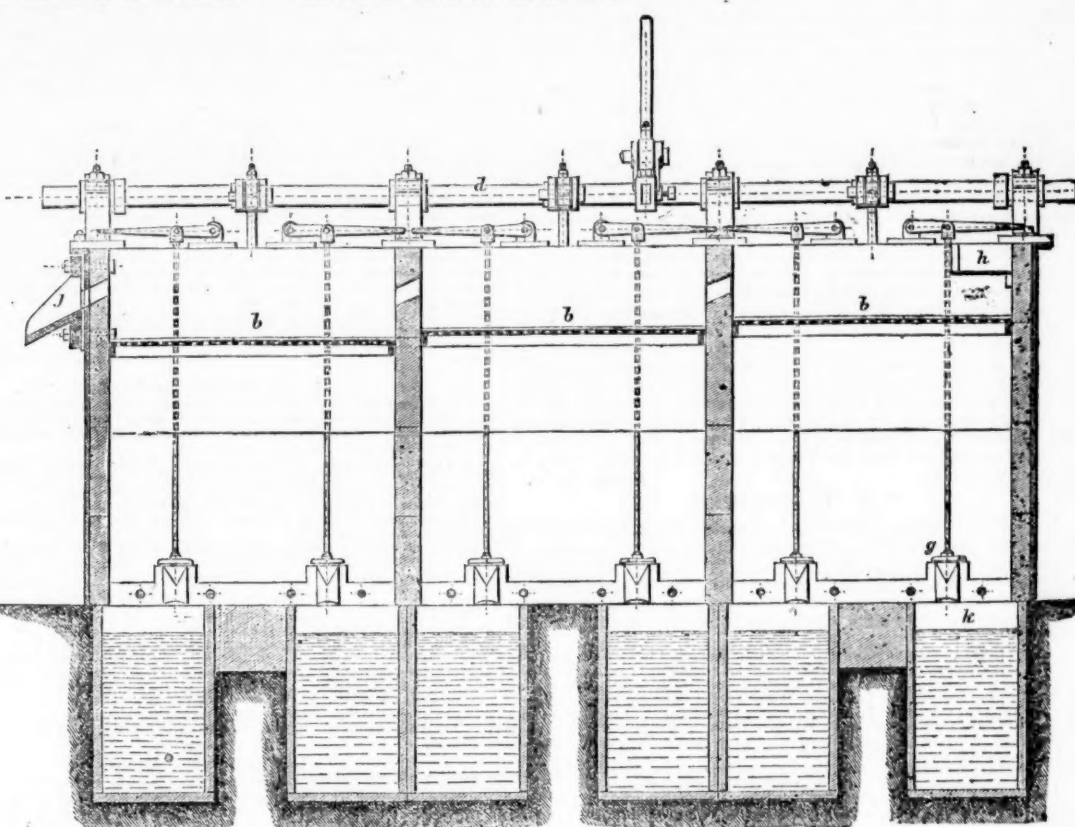
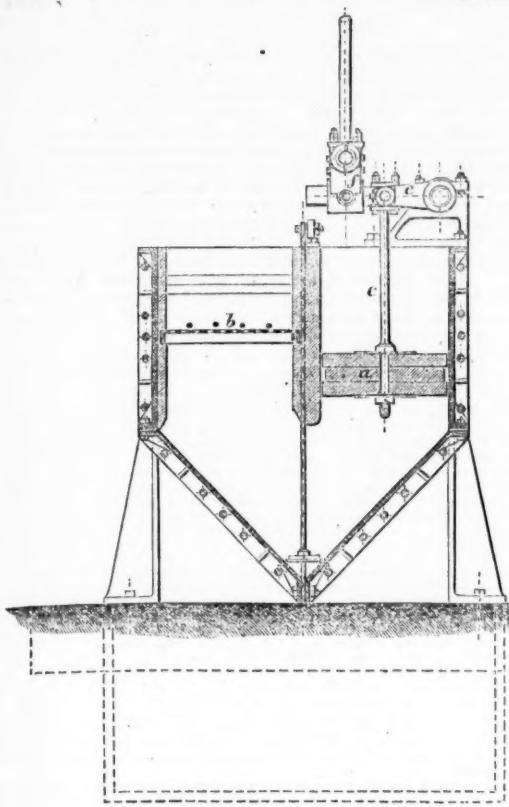
The "bane" of Cornish mining is the existence and practices of the "Stannaries Court," and abuses made of "tack-notes." I advise all who take the trouble to read my letter to "eschew" all tack-notes in buying mining properties in Cornwall. I do not object to an agreement for a lease for 21 years, or the lease itself, but really the Cornish motto "One and All" is "fourteen to one" against the promoter of a public company in London when he is asked to pay for the materials and transfer of the mine upon the following title to keep possession of an undivided property in which there are five distinct interests:—

We, the undersigned, hereby grant to — full licence and authority to search for tin, copper, lead, and all other metals and minerals for the period of one year, in and throughout all that undivided moiety of that portion of the estate of — in the parish of — in the county of Cornwall, as far as our right extends, upon the following terms, that is to say, that the said — forthwith commences and during the aforesaid time continues to explore the said lands, and search for minerals therein in a proper and miner-like manner. That the said — do and shall pay to the undersigned grantors one eighteenth part of one moiety of all monies arising from the minerals within the said lands, to be paid and sold from the said lands immediately after such sale, within any deduction, property tax only excepted. That the said — do make compensation for all damages or injuries which may be occasioned to such lands at the rate of — *l.* per statute acre for all cultivated land destroyed, and — *l.* per statute acre for all waste land destroyed; and also to make full compensation for all damage or injury to crops and cattle thereon, or the adjoining estates, such compensation to be fixed by two arbitrators, one to be chosen by each party in case of dispute. That provided the said lands have during the period aforesaid been duly worked and explored, and the said — at or before the expiration of the said period obtain such a company of adventurers for carrying on the mining operations as shall be satisfactory to the undersigned grantors, then the said — shall be entitled to a lease for the term of 21 years, to be granted by the said undersigned grantors to such of the adventurers who may propose to carry on the said mining operations as may be nominated by the grantors on the terms aforesaid, and subject thereto, and to such other exceptions, clauses and provisions as are usually inserted in mining leases in the county of Cornwall.

Dated this — day of — 187 — How is it possible, Mr. Editor, for a company to be started upon a grant for 12 months of one moiety of the land? Where is the man to be found confident enough in the integrity and liberality of the "landlords of Cornwall" to run the "gauntlet" of the Court of Chancery, and possibly the Mansion House, through launching a company upon such a basis? Yet the landlords and lawyers in Cornwall not only



## ORE DRESSING MACHINERY.



gard the thing as practicable, but even laudable in practice, as being necessary to protect what they denominate the vested interests of the county.

R. TREDINNICK,  
Consulting Mining Engineer.

3, Crown-court, Threadneedle-street, City, Feb. 21, 1872.

## ORE DRESSING MACHINERY—No. XVIII.

**FINE SAND CONTINUOUS JIGGERS.**—These continuous jiggers are now extensively employed on the German dressing-floors, in connection with fine hole sizing trommels and classifying troughs. The dimensions of the stuff passed through the jiggers vary from one-sixth to two millimetres in diameter, and, if sized in categorical order, can not only be readily treated, but will afford clean ore at the first operation.

The essential difference between fine and coarse sand continuous jiggers is this—the ore is obtained by filtering it, as it were, through a bed composed of grains coarser than the openings in the sieve bottoms, whilst in the latter the ore traverses the surface of the sieve, and is composed of grains larger in section than the openings. In the coarse sand jigger the sieve may be wide, and somewhat short, whereas in the fine sand machine the width of sieve should decrease and its length increase with decreasing fineness of stuff.

To attain a satisfactory enrichment of stuff the speed of piston, length of stroke, volume of water, and thickness of bed must be regulated one with the other. The practice is to increase the speed, shorten the stroke, and lessen the thickness of bed with the decreasing size of grains to be treated. Fine stuff, composed of grains one-sixth of a millimetre in diameter, subject to a speed of 80 strokes per minute, would mostly pass through the first sieve, but under the influence of 150 strokes per minute a certain amount of separation would be secured.

The number of sieve compartments in a jigger will depend in a great measure upon the quality and composition of the stuff to be jigged. In cases where only one ore is associated with the gangue a jigger 6 ft. long will generally be sufficient; but when two ores are together, with several varieties of vein-stone, a greater length will be found advisable. In enriching tinstuff, or other valuable products, a considerable length of jigging sieve may, no doubt, be advantageously employed.

The motion given to fine sand piston jiggers need not be a variable one—in fact, a differential motion is of no advantage in a quick short stroke. In many dressing works the piston movement is effected by eccentrics, in others by a rocking and counter shaft, whilst a third movement is produced by a revolving disc. Each arrangement includes, however, a means for varying the length of piston stroke. The mode of driving a group of jiggers should be suitable to the circumstances under which they are worked. If the machines are within a closed building belts may be very well employed, but if exposed to weather then shafting and wheel gearing will be found best.

During the earlier working of these jiggers perforated plates were considered necessary, but experience has shown that wire-mesh sieves offer the advantage of greater water-way and less resistance to the piston movement. For discharging the stuff from the collecting boxes many methods are employed. Conical valves are most in use, but wooden plugs, hauled from the outside, are equally effective. Wooden cocks are also used for this purpose. To adjust the thickness of sand on the ore beds, slides are occasionally fitted to the dividing bridges.

The instructions necessary for fixing and working these machines are as follows:—**FIXING:** Fix the jigger so that the sieve bottoms may be tolerably level.—**SIZING:** Size, or classify, the sand, and thoroughly free it from slime before introducing it to jigger.—**SIEVES:** Sieve bottoms may be of perforated plate or wire-work. Openings in sieve bottom must be larger than the grain dimensions of the stuff to be treated.—**BEDS:** Ore grains composing the beds must be larger than the openings in the sieve bottoms. Thickness of beds must depend upon size and richness of stuff to be jigged. Approximate length of stroke for grains  $\frac{1}{4}$  to  $\frac{1}{2}$  millimetre diameter one-quarter of an inch, speed 180 strokes per minute; for grains  $\frac{1}{2}$  to  $\frac{3}{4}$  millimetre, length of stroke  $\frac{1}{2}$  in., speed of piston 150 strokes per minute; stuff from  $\frac{3}{4}$  to  $1\frac{1}{2}$  millimetre, length of stroke  $\frac{3}{4}$  in., and 120 strokes per minute; sand from  $1\frac{1}{2}$  to 2 millimetres, stroke 1 in., speed 100 per minute.—**POWER:** One-sixth of a horse-power per piston.—**WATER:** 12 to 15 gallons per minute.

Fig. 1 exhibits one of the fine sand jiggers designed for the Balcorkish Mine, the pistons being driven by means of a rocking shaft and vertical rod, the latter attached to a slotted disc, forming a portion of overhead gear, not shown. a, Wooden piston; b, sieve bottoms; c, piston-rod; d, rocking shaft; e, lever connecting rocking shaft and piston-rod; f, slide loop, or lever, attached to the rocking shaft; g, discharging valves; h, perforated plate for distributing stuff and intercepting extraneous substances; i, discharging spout; k, collecting boxes.

When the quantity of stuff for enrichment is unusually large, I have employed two sets of pistons in the same hutch, balancing one against the other, and also two sets of sieves. In this arrangement the boxes underneath the sieves are discharged at the front, by means of small wooden plugs inserted in doors, each door kept in position by a double latch.

As fine sand jiggers are extensively employed for treating stamps work in the continental mines, and have almost entirely superseded the use of round buddles, there is no apparent reason why similar

machines should not prove effective in tin dressing. The stuff from a given number of heads might flow into a tripple divided classifier, and from thence to continuous jiggers. Fine sand passing away from the ends of the first classifying troughs should be diverted to a second classifier, of enlarged dimensions, and through this apparatus to a second series of jiggers, whilst impalpable slime might run to a system of enriching tables, each fitted with a small classifying box. In this way the grains would be grouped into suitable equivalents for dressing, and satisfactory results ought to be secured. Considering the present value of black tin—9d. per pound—a mere saving of 1 lb. per ton of stuff, with 100 heads of stamps, would have an approximate value of 1100*l.* yearly, a sum sufficient to encourage the trial of any apparatus likely to secure improved results without increasing the cost of working. JOHN DARLINGTON.

2, Coleman-street-buildings.

## PATENT SELF-ACTING MINERAL DRESSING MACHINERY.

SIR,—Having in former letters described the mode of dressing the ore with the above machinery, I now beg leave to furnish an account of the amount of manual labour, and expense of the same, required to attend upon them, as well as the cost per ton of orestuff from the spalled to the marketable states, from which their saving capabilities are evident. The labour cost is as follows:—Tipping trams and lubricating machinery, one boy, at 1*s.* per day; attending the Cornish crushing-mill, one boy, at 1*s.* per day; attending Girdwood's patent reciprocating mill, one boy, at 1*s.* per day; attending Davies's patent jiggers, working flat buddle, and sending ore to bin, one girl, at 1*s.* per day; attending circular buddles and trunks, raising ditto when full, two boys, at 10*l.* each. The work of these persons is not labourious, being simply to attend to and keep the machinery in working order, which in its treatment of the orestuff is perfectly self-acting. We are crushing 24 tons of spalled orestuff per day of 10½ hours with the Cornish crushing mill; all the "raggings" (or shimpings which consist of small cubes of lodestuff, in which is imbedded particles of lead ore) from which is reduced to slime by Girdwood's patent reciprocating crusher, at a cost of 5*s.* 8*d.* per day, or a little under 3*d.* per ton of stuff, for all necessary labour in preparing the ore for the market.

I may here beg to refer the reader to Messrs. Phillips and Darlington's "Treatise on Mineralogy," published in the year 1857, where he will find an account of the duty performed by a great number of crushing mills, and the cost per ton of crushing the stuff, the lowest of which is, if I remember rightly, 2½*d.* for passing the stuff through the crusher alone, while with the above machinery we are doing all crushing and dressing work for a trifle more. It is difficult to state what the clean ore costs per ton for dressing, since the quality of the stuff varies considerably even in the same mine. When the agent knows how much it will cost to extract the ore from 1 ton of stuff he will soon find out how many tons of stuff it will take to make 1 ton of ore, and as a matter of course he will see at a glance how much it will cost to dress the ore. The reader should bear in mind that it costs more to send the ore to the bin than the skimpings away with the water. If, however, it should, fortunately, be the case that the ore can be obtained in such quantities as to be expensive in transferring to the bin, our inventive engineer will, no doubt, soon find out a more economical method of dealing with it than by manual labour. He has already conferred a great boon on mining adventurers who have the means and sagacity to adopt his plan of dressing their ores.

Our new crushing mill (for the raggings) is the invention of the eminent mining proprietor Mr. R. Girdwood, Edinburgh, to whom much credit is due for the invention, which reduces the raggings to such a state as to render it easily dealt with, while the ore is extracted from it at a merely nominal cost.

A letter in the *Aberystwith Observer* of Jan. 20, on "Mining in Cardiganshire," has the following passage:—"The want in this district, as elsewhere, is capital to develop its immense mineral wealth," &c. I fully endorse what the writer says as to the mineral wealth of the county, but he might have added that another great want is an economical system of dressing machinery, which, doing the work more rapidly and superior to hand labour, as well as at infinitely less cost, would remunerate for the outlay. Were this machinery introduced into mines that now do not pay, they would soon be removed to the Dividend List of the *Mining Journal*.

Since my last communication to you several eminent mining gentlemen have favoured us with a visit, some of whom have, during a great number of years, rendered important services in the mining world, all of whom were astonished to see the facility with which the stuff was treated and the ore prepared for the market. My candid conviction is that Mr. Green, the able engineer, is worthy of a handsome testimonial from working miners and mining gentlemen generally, on whom he has conferred an unquestionable boon. Old and abandoned mines are now returning profits, those of others are enhanced, while new mines are starting on every side with fair chances of success. The high state of perfection to which mechanical dressing appliances have attained is evidently creating a new era in the history of mining. Labour is abundant, wages increasing, and so long as proportionately increased profits accrue to capitalists so much the better for both parties. This invention is equal to a large amount of capital (since it does away to a great extent with the necessity for costly manual labour), on the principle that a "penny saved is equal to a penny gained," while its unquestionable economy in dressing the

ore augments the value of every mining concern into which it is introduced. If anything can bring Cardiganshire into greater eminence as a mining district it is capital laid out in developing its mineral wealth. It matters not whether the ore be silver, tin, lead, or copper, provided it is of greater weight than the inferior substances with which it is associated. This system is calculated to extract 10 to 20 per cent. more ore than any other that has yet been in use. *Great Durren Mine, near Aberystwith, Feb. 22.* N. W.

## SECRETARIAL MINING.

SIR,—In reference to a letter which appeared in the Supplement to last week's Journal under this heading, may I be permitted to offer a few remarks? It happens in many cases that the appointments of mining secretaries are given to brokers or dealers, with a nominal salary, as persons most fitting for the position, giving the company the benefit of their experience, saving the charge, for offices, clerks, and a secretary, for whose whole time they would have to pay a higher compensation. When this is not the case, how could this official be precluded, if only as a proprietor, from selling or buying the stock of the company?

The ordinary sagacity and care of the committee or directors would guide them in avoiding an unscrupulous jobbing official, but would select an active, intelligent man, who, as in the case of companies in which I am interested, keeps up an active correspondence with the agents and others at the mine—one who is careful that the weekly reports for the public shall be of such a character as he can vouch for, and when enquiries are made will state the value of the shares; and, if prepared to buy or sell at his quotations, so much the better. No worse feature can attend a mining company than not having someone who takes an interest in the market price of their shares.

"Shareholder" does not say whether his lady friend or himself were prejudiced in the transactions to which he refers, in which the secretary was buyer and seller. He ought rather to rejoice that when disposed to sell he was enabled to find a buyer, although he was secretary, after having carefully enquired upon the market whether he could obtain a better price. DIRECTOR.

London, Feb. 22.

## "SECRETARIAL MINING."

SIR,—Under the head of Secretarial Mining, "A Shareholder" calls attention to jobbing secretaries; and, after referring to a circular which had been forwarded to him with advice as to the purchase of certain mining shares, asks if it is a consistent position for a secretary to act as broker or jobber? My answer to that query is simply, that a secretary ought not to be debarred, when applied to, from acting as negotiator in the purchase and sale of shares; and, in my opinion, adventurers in mines would do well to consult with some of these gentlemen (who, from long standing, are pretty well acquainted with most of the mining districts, and better able to give an opinion as to the value or worthlessness of many of the mines submitted to the public by advertisers and others) before they embark their money in much of the rubbish (I might use a much stronger word) that is now before capitalists and investors, and being cracked up as brilliants of the first water.

Secretaries are not so well paid as to be proof against executing a small commission, as a return for their frequent valuable advice when appealed to by cautious adventurers, and I cannot see that the interests of the mine suffer in any way from this harmless and slightly profitable amusement; neither are they impecunious, but I think I am paying them a deserving compliment when I say that I have always found, when putting myself in communication with the secretary of a respectably conducted mining company, a desire to protect the unwary from the machinations of a clique, whose transactions, if fully known, would consign them, in times of old, to a dance up in nothing, or even, in this tender-hearted age, to a maintenance for life at the country's expense. *London, Feb. 22.* ANOTHER SHAREHOLDER.

## VAN CONSOLS MINE.

SIR,—Had the writer of your City Article referred to the abandoned mine between the eastern ground of Van Consols and the Van Mine, as suggested by "Observer," he would, in my humble opinion, rather have strengthened the position of Van Consols than otherwise. The "abandoned mine" referred to was the once rich Pen-y-clyn, which was worked to a moderate depth, and returned at one time as much as 150 tons of lead ore per month. The fact is, the "Van," or, as you call it, the trunk lode of the district, was first worked in the old Bryntail, and made great riches. The vein was of great size, and in places quite as rich, if not richer, than it has ever yet been in Van. It made the fortunes of some local people, and paid a few dividends under London management, and then the "ore cut out," as "Observer" says; or, in other words, the lode failed in depth. In the adjoining mine—Pen-y-clyn—the lode was also very large and rich; and, as in Bryntail, made great profits, and also failed in depth. And here let me remark that Capt. Williams, the present manager of Van, was the manager of the "abandoned mine"—Pen-y-clyn—and he made for his employers something like 60,000*l.* profit from it, and when the "ore cut out" he found the "disturbing cause," if there was any, near the Van boundary, and not between the rich lode of Pen-y-clyn and Van Consols; and when a few adventurous tradesmen in Shropshire took up the Van sett he became their agent, and drove an adit till he cut the same lode, and when first cut it was not more promising, as I have been told on the spot, than it had formerly been in Bryntail or Pen-y-clyn, "disturbing causes" notwithstanding. And why, at this same Capt. Williams's advice, was the standing. Because it was feared that the fate of the other mines on the same lode would befall Van, and that the ore would not continue in depth. The fortunate purchasers thought nothing of this "disturbing cause,"



[illegible]



Mr. Baines was detained so late in Natal, and was then obliged to start with so few oxen, and they, enfeebled by intense cold on the snow, capped Drakensberg, in the Free State by want of grass all the way, and by long treks of three days at a time without water between Ba-Mangwato and the Tati, that but for the kind assistance of Mr. Hartley and other friends he could scarcely have got his wagons to Gibbekaiko at all, and the length of time required to send a letter home, and get a reply, prevents him obtaining assistance from the South African Gold Fields Exploration Company,



which he represents, in time to be of use. He is, therefore, struggling on, getting supplies on his own credit, until the company can send him more from home, and to maintain the favourable position he has gained with the Matabili, and their king Lo Bengula. In the meantime the king has accepted Mr. Baines's explanation of the unavoidable delay in getting out machinery and working plant, has confirmed his verbal grant, and consented to give him a written one, and has also given him a new road (that is, liberty to find one) through the unexplored country south of his present location, crossing the Limpopo between Zoutpansberg and Bleuberg, so that he can avoid the Doorstand (or thirsty country) near Matjens. The grant of Lo Bengula gives the right to explore, prospect, dig, or mine for gold, in all that country between the Gwailo River on the south-west, and the Ganyana River on the north-east, with liberty to build dwelling-houses and stores, to erect machinery for crushing and other purposes, and to use the roads freely. Mr. Baines undertaking, as the representative of the company, not to make any claim contrary or injurious to Lo Bengula's right as sovereign, to recognize his authority as king, and to give to him annually such payment as may seem proper to Mr. Baines, and be acceptable to the king. The document is formally signed (with his mark) and sealed by Lo Bengula, and witnessed by G. A. Phillips, F. Betts, Robert J. Jewell, and John Lee, who acts as interpreter and agent to the king. Both Lo Bengula and Mr. Baines may well be congratulated upon the arrangement made.

#### FOREIGN MINING AND METALLURGY.

Good news continues to come to hand with reference to the Belgian iron trade. All qualities are sought after, all prices are well maintained, and the only complaints which are heard relate to the scarcity of raw materials—a circumstance which is, however, a necessary concomitant of a prosperous state of affairs. The Thevenet mechanical establishment at Antwerp has just been purchased by the State. The late proprietor intends, it is said, to found a similar establishment in France. A denial is given to a statement that some new railway plant works are about to be established at Amsterdam. There has been plenty doing of late in Germany. No fewer than 14 contracts have been let during the last three weeks by the German railway interest—three for locomotives, four for iron bridge work, five for rails or accessories, and one for trucks, wheels, and axles. It is noticed that numerous competitors presented themselves, although it had been stated that the market was overdone. In Austria the activity prevailing in the iron trade and in general industrial affairs has not slackened. Some great contracts for rails, to be executed in the course of this year, are stated to have been let in Belgium and England, and still larger orders are promised for 1873. MM. Gouin, of Paris, are stated to have secured a contract for a great bridge at Pesth.

Complaints are being heard in Belgium of the bad organization of the transport service on canals, and especially on French canals. When the transport difficulty prevailed in its full intensity all responsibility of it was thrown upon the railways. Now that a promise has been given that everything that is possible shall be done on this head the wrath of industrialists is beginning to be directed against navigations, and they admit—although rather tardily it must be confessed—that the railway transport grievance would have been much less urgent if the navigation arrangements had been more efficient. Meanwhile freights to Paris have fallen to 8s. per ton, and the circumstance has involved a large increase in navigation business. Thanks to this moderate rate of freight, it has been practicable to forward coal even from the Charleroi basin as far as Rouen in competition with English coal, which has been selling at a high rate in consequence of the dearth of maritime freights. Prices of Belgian coal are, however, advancing for some qualities, while they are excessively firm as regards others. Coalowners decline to enter in consequence into contracts for longer periods than six months, and contracts which have been renewed show a sensible advance in prices; this is due to the extraordinary activity displayed of late by Belgian metallurgical industry. As regards coke the production is inferior to the requirements of consumption, and the make is engaged for a long time in advance. An exceptionally good season is anticipated in connection with the manufacture of briquettes. Every branch of the Belgian coal trade may, indeed, be pronounced in a prosperous condition. The Lower Sambre United Collieries Company will pay March 1 a dividend of 12s. per share. The Couchant de Flénu Colliery Company will pay, March 1, a dividend of 4s. per share; and the Crachet and Piquery Collieries Company will pay, March 1, statutory interest for 1871, or 10s. per share. The condition of the French iron trade continues everywhere excellent. Second fusion pig is dealt in at 47. 16s. to 57. 4s. per ton, according to marks. Rolled coke-made iron is quoted at 87. 4s. to 87. 12s. per ton; ditto charcoal-made, 107. to 107. 8s. per ton. Machine coke-made iron has brought 97. 12s. to 107. per ton; ditto charcoal-made, 117. 12s. to 127. per ton. In the Bouches-du-Rhône a large number of workpeople engaged at the workshops of the Paris, Lyons, and Mediterranean Railway Company at Arles have gone on strike, in consequence, it is stated, of a reduction of 5s. per man per working day. The Franche-Comté Blast-Furnaces, Foundries, and Forges Company has been paying a dividend of 5s. per share.

The regularity with which navigation services have been maintained in France has mitigated the sufferings occasioned by the scarcity of combustible. In the Nord, the Pas-de-Calais, the Loire, the Centre, the South—everywhere, in short—the extraction is being pushed forward with much vigour, without coalowners having to complain, as in Belgium, of the scarcity of labour. Men on strike from the Charleroi district, who had expected to find employment in the North of France, have been everywhere refused work. In consequence of the great number of new works which have been erected in France, it is still feared that transport facilities will be found inadequate next autumn; there gloomy anticipations appear, however, premature, and it certainly seems useless to hunt out and discover difficulties before they actually exist. As regards prices in the French coal trade, there is nothing new to communicate; at the same time, they are maintained with much firmness.

The French copper markets have been in a languishing state of late. At Havre, Chilean in bars has made 87. per ton for current marks, and 89. per ton for good marks. There is little to report as to the German markets, upon which copper and tin are generally neglected. The French tin markets have shown very little animation. At Rotterdam tin has not been in very active demand; some transactions in disposable Banca have taken place at 85 fls. Lots to be delivered in April and May have commanded about the same price. Billiton, which is rather scarce, has brought 83. fls. The price of lead has been hardening in Germany. The business passing in lead has not been large; former rates have been about maintained.

#### FOREIGN MINES.

**ST. JOHN DEL REY.**—The directors have received the following report, dated Morro Velho, January 17: Morro Velho produce for December, 12,797 lbs., from 6023 tons ore, yield 2.519 lbs. per ton. Morro Velho cost for December 4790l.; profit for December, 303l. Morro Velho produce, eleven days of January, 3721 lbs., yield 2.253 lbs. per ton. Gala produce for December, 28,000 lbs., from 576 tons ore, yield 1.937 lbs. per ton. Gala cost for December, 3171l.; Gala loss for December, 152l. Gala produce, eleven days of January, 3450 lbs., yield 1.678 lbs. per ton. The water lowered in the new shafts during 16 days of January 23 feet, and it is believed it is lowered to the same extent in the old mines, but from falling rocks we have not been able to measure it there.

**DON PEDRO NORTH DEL REY.**—Report for December—Produce and Cost: Produce, 9168 lbs., at 8s. 6d. per cwt., 4023l. 18s.; cost, 3294l. 14s. 5d.; profit, 729l. 3s. 7d. The results of the month's working as compared with those reported for November are not less favourable; for whilst the produce is a little under, the profit shown is in excess, and the indications presented by the various lines of gold are more pleasing. First Division of January—Extract from letter dated Jan. 18: The weather is fine and force good, and works generally are progressing with regularity.

**ROSSA GRANDE.**—Report for December: Produce for month 6160 lbs., of gold; total cost, 707l. 6s. 2d. At Bahu the pump-shaft has been sunk 2 fms. during the month. The lode is still rather contracted, being 2 feet wide, and of a very hard nature; its quality in this part of the mine has been ascertained by stamping from 11.32 tons of ore, which produced 592 lbs.—18.5 per ton. The 10 east has been extended 2 fathoms during the month; the lode is small, and of good quality. At Cachoeira, Richards's shaft has been sunk 5 fms. during the month, and also the month of same on account of its low position has been risen 2 fathoms; it is now firmly thithered with double the former thickness, complete within 9 feet of the adit level. For the First Division of January it is reported that good auriferous ore is being crushed from the bottom of Bahu, and

it is hoped from sinking and driving along the gold return for current month will be equal to that of last month.

**GENERAL BRAZILIAN.**—Report for December: The produce for December, 3 osts, gold—General operations: Working has been at the Moore's shaft in the under suspension, and the force removed to the middle adit. The shallow adit is still wet and difficult to handle. Souza's vein, at cross-cut No. 1, is poor; at cross-cut No. 2 the vein has been intersected, it is not rich, but yielding work for stamps. At St. Anna the ground in shallow adit No. 1 has much improved. At the old adit, old workings are still being cleared, and the small shaft sunk. Explorations are under suspension. The new stamping mill at Itabira was set to work on the 20th instant, but there are yet many jobs to finish before the house can be closed up; it was called Dawson's stamps. No gold has been received during the month; the water is in the shafts, and a few dozens of the former, but we shall not require to purchase any of the latter for the next two or three months. We have also a stock of iron on hand. The health of the establishment is good, and provisions abundant. For the first division of January it is reported that the produce to the 11th, 44 osts, derived from stamping, 6 tons from Souza's vein, 7.33 osts, per ton. The produce from Foster's and Dawson's stamping mills has not yet been cleaned up. We have at surface upwards of 100 tons debris from Souza's vein, but our supply of water is limited, hence the small quantity of debris treated. The want of a good supply of water is a serious difficulty. The water supply of water on the return from the Itabira Mines alone would be long enough to pay nearly all the present working cost of all the General Brazilian Company's mines. The supply of materials and provisions has been ample.

**ANGLO-BRAZILIAN.**—Report for December—Passagem: The produce for the month amounts to 869½ osts, (or 93 osts, troy); cost at Passagem, 565l. 11s. 2d. The standard, though low, is satisfactory, as the greater part of stone treated with Jacotina has been derived from the crushed workings at Dawson's 44 fathom horizon. Results derived from calculation of the pyritic ores have given from 7 to 9 osts, per ton. Experimental measures are now in hand to concentrate by a system of straking the Jacotina previous to stamping. Pitangui: Cost for the month, 565l. 18s. Our expectations as to the cutting of the gold line at Franco Antonio, I am pleased to say, have been fully realised. With great difficulty the bottom, 28½ fathoms, has been reached, being 11 fms. beyond what we were given to understand at the first commencement of operations, otherwise more permanent measures might have been taken for accomplishing same. Owing to the confined and insecure nature of the old workings and the rapid increase of water, we have only succeeded in taking some 20 bags samples of 8 lbs. each of line work, which, on cleaning, gave over 20 osts, of gold, or equal to one for every 8 lbs. of earth. Besides this, nearly an eighth of a ton was taken from the upper part of the line and hanging wall, giving about the same results. Gold also to be seen plainly in every direction within a short radius of line. The line, 14 in. wide, appears to be well defined at its lowest point. Our object has now been satisfactorily attained, proving as it does the continued richness of the line, from which large amounts of gold were taken by the old proprietors. First Division of January—Extract from letter dated Jan. 17: Passagem: The preparatory arrangements for the concentration of Jacotina will take longer than we expected. Measures are also in hand on a scale sufficiently large to pronounce upon the practicability of calculating in large heaps. The difference between 2 osts, (the average for the last two years) and 9½ leaves a good margin for any additional cost. This so far looks well, also the assay of general stampwork (16 osts, per ton), more and more confirms my opinion that had the actual value of the ore passed through these stamps been taken from time to time, other more suitable means might have been taken for the better separation of the gold, and the company would then have been earning profits years ago. Pitangui: I think there is every reason to be satisfied with the nature and produce of Franco Antonio gold line. As I have said, our object has been attained in proving its continuation and value, and we can now with much more satisfaction commence our permanent work. The 10 fathoms still to be sunk in the vertical shaft in Jacotina will be finished some time in March next, when small returns may be looked for.

**TAQUARIL.**—Capt. W. H. Martin's report for December states that during the month operations have progressed fairly, and the health of the establishment, on the whole, is favourable. Work for treatment at the stamps has been derived almost exclusively from the 25 m. level ends on Nos. 1 and 2 lodes, west of Haymen's shaft, and from the back of the level, with the exception of 150 tons of trial stuff, from various exploratory works, which have given but a small yield. In the early part of the month some fair box work was taken from the small Jacotina line on No. 1 lode, since which it has not been so good, and the line treated as ordinary work at the stamps. The produce for the month amounts to 72 osts, derived from 267½ tons of ore, yielding 2.65 osts, per ton. The establishment has been kept in good repair. For the first division of January it is reported that the works generally are progressing in a satisfactory manner, but produce is not looking quite so favourable, the gold-bearing veins yielding scarcely any box work. During the last few days the ground in the 25, west of Haymen's shaft and No. 2 lode considerably eased towards the south or hanging wall, and opening out a little in that direction. Both lodes (Nos. 1 and 2) formed a junction, from which point some very good samples of rough gold have been taken out, and the water issuing from the lode greatly increased. A junction of this kind is regarded as favourable for the production of mineral. The Jacotina line in the 25, west, on No. 1 lode, is yielding a little gold, but not rich stamping work. In the 15 cross-cut, north of old workings, the ground is not near so hard for exploring, but no lode intersected as yet. The lode in the shallow adit, west of the cross-cut from Haymen's shaft, has a promising appearance. Operations have been suspended on the exploratory works in the curves of the mountain during the remainder of the rainy season, in consequence of the ground requiring timber. In dry weather it can be wrought without. In the shallow level, which is being explored in the formation east of the main shaft, the lode is not near so rich, but is promising a little rough gold, and to improve as the level advances into the month. We have commenced to treat some of the work separately with three heads of the stamps, in order to give it a fair trial.

**SAO VICENTE.**—Report for December: In Viscount's shaft the Jacotina is slightly auriferous, but nothing to give any return. In the deep adit the Jacotina inside the old workings is slightly auriferous. There is still a great quantity of water issuing from the extreme end of the ground. At No. 1 level we have driven about 20 feet, making a total of 222 feet; in all probability this is the first place we shall get payable gold. No. 3 level has been driven 68 feet, the entire distance has been in Jacotina. The extreme end shows minute particles of gold in the bottom. In the 25, west, on No. 1 lode, is yielding a little gold, but not rich stamping work. In the 15 cross-cut, north of old workings, the ground is not near so hard for exploring, but no lode intersected as yet. The lode in the shallow adit, west of the cross-cut from Haymen's shaft, has a promising appearance. Operations have been suspended on the exploratory works in the curves of the mountain during the remainder of the rainy season, in consequence of the ground requiring timber. In dry weather it can be wrought without. In the shallow level, which is being explored in the formation east of the main shaft, the lode is not near so rich, but is promising a little rough gold, and to improve as the level advances into the month. We have commenced to treat some of the work separately with three heads of the stamps, in order to give it a fair trial.

**PACIFIC.**—Referring to the stoppage of the Metcalf Mill for want of fuel, Capt. J. B. de la Cruz telegraphs to the directors:—"Will reduce sufficient fuel to meet the want."

**CHONTALS.**—J. Tonkin, W. Evans, Jan. 5: San Antonio Mine: A stop in the back of the No. 3 level has been stopped 22½ fms.; the lode is 2 feet wide, worth 5 dwts. of gold per ton. The No. 1 level in the back of the level east and west of the eastern cross-cut, has been stopped 18½ fms.; the lode is 3 ft. wide, worth 4 dwts. of gold per ton. The stop in the back of the level west of the eastern cross-cut has been stopped 37 fms.; the lode is 1 foot wide, worth 5 dwts. of gold per ton. We have put up a rise in the back of the C in connection level on the course of the lode; for the first 18 fms. the lode was poor, but at present it is 3 ft. wide, and worth 10 dwts. of gold per ton. San Sebastian Mine: The San Sebastian level has been driven east on the course of the lode 10 fms.; the lode is 1 foot wide, worth 5 dwts. of gold per ton. We have also put up a rise in the back of this level 29 fms., and communicated with the surface; in the first part of the rise the lode is 4 ft. wide, and worth 3 dwts. of gold per ton, but in the top part the lode is small and poor. East San Benito Mine: The No. 3 level has been driven east on the course of the lode 26½ fms.; the lode is 6 feet wide, yielding a little gold, but not sufficient to value. The No. 2 level has been driven east 17½ fms.; the lode is 3 feet wide, worth 4 dwts. of gold per ton. The No. 3 level has been put up 11 fms., and holed with No. 1 level; the lode in this rise is about 6 feet wide, and worth from 5 to 7 dwts. of gold per ton. We have stopped 10½ fms. in the back of the No. 2 level east of No. 5 rise, worth 6 dwts. of gold per ton. In the back of No. 2 level, east of Morales's rise, we have stopped 24 fms. on the north part of the lode, worth 15 dwts. of gold per ton; we intend to commence at once to stop the south part of the lode, which we believe to be the richest part of the lode. The No. 2 level west has been driven 12 fms. on a lode from 4 to 5 feet wide, worth 3 dwts. of gold per ton. The No. 1 level has been driven east 12½ fms.; the lode in this level has been small and poor during the month, but we find to-day it has opened out considerably, being 12½ fms. wide, and yielding a little gold. We have stopped 24 fms. in the back of No. 1 level, west of Morales's rise, worth 4 dwts. of gold per ton. The quantity of quartz sent to the mill is as follows:—From San Antonio, 448 tons, yielding 4½ dwts. of gold per ton; from East San Benito, 885 tons, yielding 6 dwts. of gold per ton; in all, 1333 tons—262.300 osts. of gold.

**I. X. L. (Gold and Silver).**—Lewis Chalmers, Jan. 14: My plan of operations will be to a certain extent what you have suggested. The main shaft is undoubtedly the piece of work which is to tell most on the future of the mine. By altering its location to near the O. K. I shall save 83 ft. of sinking, and I think something in grading, and the access to the works will be very much easier. I shall also save some feet of driving towards the junction of the lodes at J. As I shall not be able to get holding works on the ground for two months I shall have ample time to make a very minute survey before finally fixing up on their site. I may also content myself at present with machinery up to only 500 ft. of depth, which being of a portable nature costs less for freight and repair, as well as originally. By the time we have driven 500 ft. on the lodes from the bottom of the 3rd level, to which these will take us, the mine will be able, I hope, to pay for any additional machinery wanted out of its own treasury. The board's wishes as to weekly advices and monthly accounts shall be attended to.

**EXCHEQUER (Gold and Silver).**—L. Chalmers, Jan. 15: I have now to report for the information of the board that I cannot yet do any work in the Acacia tunnel to any advantage, owing to the depth of snow at that place; operations are, therefore, confined at present to running the upper tunnel and the cross drive therefrom in the direction of the Acacia; 13 feet were made last week, and the rock improves gradually. One man working three days singly made 5 ft. in the cross drive 49 ft. (say 50 ft., in case of the dip altering) ought to bring us to the Acacia, if it goes through, as I believe it does, north 51° 30' west. Four sets of timbers were put in, and a day was lost in shovelling away snow which fell and blew last week from the mouth of the tunnel. I will push this now without further interruption, and I am sanguine of being repaid soon.

**MALAGA SILVER-LEAD MINES (Spain).**—Saml. R. Coeks, Feb. 10: This mine is situated in a very mountainous country, and is being worked by means of adit levels. When we first took to this mine it was pretty well filled up with rubbish, which we have removed. We found four different lodes in the old workings, and in many instances rich silver-lead ore standing in the backs of the old levels, which we are stopping away, and find the same very rich for silver-lead ore—indeed, over 50 osts. of silver to the ton of ore. This mine has been purchased and worked vigorously by a Liverpool company; and under the management of Capt. R. E. Coeks, the mine is now being fully laid open, so as to get and bring to surface rich parcels of lead ore. We are now working four stops, which are yielding well, and driving two ends on the course of the lodes.

also the present deep adit level as a cross-cut that will intersect the lodes 11 fms. deeper than where there have been any former workings. We hope to intersect No. 1 lode in this cross-cut in the course of a week or ten days. This cross-cut is being driven at \$12 per vara, or about 41. 15s. per fathom. This end is 15 ft. out water, and the ground is easier—indeed, the ground is going in favour of the contractors—and is worked by six men and one boy from 12 P.M. on Sunday night to 12 P.M. on Saturday, as this cross-cut is of great importance in intersecting the lodes and ventilating the mine. We are driving this level large enough to receive a tramway, as we can then remove the rubbish and the ore with far greater dispatch than the natives did hitherto. The natives in former days took everything out of the mine to surface in baskets, carrying about 15 lbs. weight at a time. We can go on taking deeper and deeper adit levels whenever they are required 40 or 50 fms. deeper. When this mine was last worked the natives took up all the water to dress the ore with in barrels on mules' back, instead of taking the ore down to the water, as we are now preparing to do. We are now laying out our dressing-floors in the valley, and shall lay tramway, and convey all the work to the floors, where there is ample water for dressing purposes. We have an English dresser here, who, with a staff of men, is now laying out the floors on the newest and most improved principle for ore dressing. On this being done we shall commence dressing and sending ore to market, which will undoubtedly fetch a high price, being rich for silver. Our works are progressing satisfactorily at surface as well as underground. I have a good staff of English mechanics and miners and a dresser here—good steady men, and all attend to their various occupation in a regular and well-conducted manner. We have dwelling houses built and furnished for the Englishmen, with offices, smithery, carpenters' shop, store-house, &c., and all the men enjoy good health thus far. This mine is opening a new and a good employment, and reports, and with no small profit to the shareholders, as are long the shares must go to a high premium. You find four different lodes running parallel north and south, and from indications we fully believe there are other lodes east of us. We intend to continue the driving of the present deep adit level, so as to intersect them. These lodes are embedded in good killas and limestone, with occasional slides, &c., and the ground is easy for exploring and congenial for lead ore—indeed, our prospects are very clearing, and we are progressing most favourably, and the shareholders may congratulate themselves that they have a good property.

**BATTLE MOUNTAIN.**—Capt. Richards, Jan. 18: Virgin: Bishop's winze, sinking below the 113 feet, or deepest level in this mine, is down nearly 30 ft.; this winze being on the line of the lode is intended for ore of some value; the ground therein is composed of quartz and iron principally of the low, or Virgin, shaft, owing to the underlie of the lode, is some distance from it at the 113 ft. level, and would be very expensive to sink, owing to it containing a mass of iron pyrites, exceedingly compact and hard, and hence the cheaper and at the present better mode of proving the ground in depth by deepening Bishop's winze, as before alluded to. There is now some indication of a foot wall coming in, and if it proves to be so we may yet get something in depth. I think the finding traces of silver in the stuff is encouraging. In the 113 and 73 ft. levels north the lode contains no ore at present. In the back of the 73, Thomas's rise contains a little green carbonate of copper. The stopes in the back of the 113 produce fair quantities of ore. The weather having improved I hope the teams may be able to come along regularly for ore: 510 sacks arrived during past week. Stock on hand 2236 sacks at San Francisco, 789 sacks at depot, 800 sacks at mine—3816 sacks.

**LUSITANIAN.**—Palhal, Feb. 13: Taylor's shaftmen have fixed the new drawing-lift and rod from the 140 to the 150, and are now ready to sink as soon as the water is in fork. The plat at the 150 is completed. Basto's Lode: East of Taylor's shaft the 150 is being driven on a lode 9 ft. wide, composed of quartz, country, and carbonaceous lime, with some copper ore as a matrix; and west of Taylor's shaft on a lode 2½ ft. wide, and worth 1 ton of ore per 1½ ton per fathom. The 150 is holed to winze No. 90; the lode here is worth 1½ ton per fathom. In the 140 east the lode is 5 ft. wide, composed of quartz; in the 140 west it is yielding 1½ ton per fathom. The lode is 3 ft. wide in the 130 east, and unproductive. In the 120, east of River's shaft, the lode is 6 feet wide, containing stones of ore. In the 110 east the lode is 3 ft. wide, composed of flooken and schist, and in the 90 ft. 2 ft. wide, of the same character, with little ore. The lode in the adit, west of Perez's shaft, is 2 in. wide, and has a very regular wall. In the 70, east of River's shaft, the lode is 3 ft. wide, worth 1½ ton of ore per fathom. Mill lode in the 38, east of Taylor's, is 1 ft. wide, composed of quartz and schist. The branch in the 38, west of the slide lode, is in a very disordered state, and the ground is very hard. The slide lode in the 130, south-west and north-east of Taylor's shaft, is 1 ft. wide, composed of flooken and schist. The winze below the 70 is suspended for the time, on account of water. In rise above 9, against said winze, lode 4 ft. wide, giving good stones of ore. Winze No. 90, below the 140, west of Taylor's shaft, is holed to the 200; the lode here is worth 1½ ton per fathom. In winze No. 91, below the 140, east of the shaft, the lode yields 2 tons per fathom. The ground in the 140, east of the same character, in the 6 ft. level cross-cut. Great Lode: In the 6, out of incline shaft, the lode is 1 ft. wide, composed of quartz. In the 50 it is of the same size, worth ¾ ton per fathom. The lode is 2 ft. wide in the 30 east, composed of quartz and lead ore, worth 3 tons per fathom. The 40 west contains a lode 1½ ft. wide, poor. The 20 east contains a lode 1 ft. wide, composed of quartz and country. Caunter Lode: In the adit west of incline shaft the lode is composed of flooken and schist, and the ground about it is much harder. In the rise above the 10 the lode is 1½ ft. wide, made up of quartz, spotted with lead. The lode is 4 ft. wide in the 20, but it is of no value. In the 30 east the lode is 3 ft. wide, worth 1½ ton per fathom.

[For remainder of Foreign Mines see to-day's Journal.]

#### MINING IN AUSTRALASIA—MONTHLY SUMMARY.

**GOLD.**—Some interest has been created in the Uioleoo gold field by Mr. Stimmons, the storekeeper, taking to the Burra three fine nuggets. The largest presents a solid appearance, weighs a little more than 13 osts, troy, is nearly all pure gold, a good deal water-worn, is about ¾ to 1½ in. thick, and measures 4½ in. length. There is some ironstone embedded in the crevices, but in other respects the piece presents to the eye the look of a beautiful specimen. The next largest bit, which has a quantity of ironstone intermixed, is supposed to contain about 2 osts. of pure gold. The third is a small, round, smooth, a really beautiful piece of pure gold, bright and clean, but very rough, weighing about ¾ oz. Cotter's Hill is still the chief point of interest on Barossa district. About half-a-dozen claims are getting payable gold. The prospecting claims seem to contain some rich ground. It is believed that some of it would pay a pound weight to the ton. A very rich discovery of gold in quartz has been recently made in the vicinity of Blumberg.

**COPPER.**—There is little change to report respecting the mining interest on Yorke Peninsula. It has steadily held its own throughout a season of remarkable depression, and now that the good time which has seemed to us so long coming appears to be at hand, we shall expect to see more signs of vitality. But there will not be much reason for rejoicing in the mining of the P. Peninsula until some improvement has been introduced into the aboriginal industrial system that obtains. During the past ten years the Wallaroo Mine proprietors have paid in wages, &c., nearly one million and a half of money, and now, when they ask for a renewal of their leases, they are met with a proposition of an enormous exorbitant, and unreasonable fine. Until this vexed question is settled it is difficult to expect fresh capital to be invested in peninsular mines, although the Mine paid their owners so handsomely. The best proof of what the Moorina Mines are doing is the announcement that in future its dividend, one of the most liberal in the colony, will be paid quarterly. The discovery of a valuable course of ore going eastwards that had long been lost will no doubt assist to facilitate a desirable state of things. At the Wallaroo Mines, pending the settlement of the lease question, things are being maintained as nearly as possible at the same state as before. At the Doora a continued improvement is noticeable, and that we believe, is only required to prove the great importance of the mine. The Paramatta is fortunate in having a large lode, composed of rich ore, at the bottom of its principal shaft, and affairs at the mine are consequently in a very healthy stage. Very much the same may be said of the Yelta Mine, which certainly, as at present, seems to be a paying mine. At this mine a considerable amount of cost-making is being done, which will probably result in a valuable contribution to the company sooner or later. In the opinion of mining men the Hamby still holds a very high place; and the North Yelta is pushing steadily along with every reasonable prospect of success. There is an improvement in the working of the Pooma and the Kurilla, and at one or two other smaller mines, which are regularly proceeded with. On the whole, whilst we have no brilliant success to point to, we can show a steady modicum of success of a solid and durable character.

**BISMUTH.**—A lot of 322 lbs. of bismuth from the Balhannah Mine has been sold in London at 11s. per lb., which price is considered very satisfactory. It is intended to ship a further parcel of 200 lbs. by the South Australian, and smelting will be shortly resumed at the works.

#### AUSTRALIAN MINES.

**YUDANAMUTANA.**—Mr. Martin (Adelaide, Dec. 28) states:—"I have my last I have been busy engaged on the mine until the 18th inst., when I returned to Adelaide, and to-morrow I leave again for the mine, where I shall probably remain for six or eight weeks. I have been very hard, and will continue to do so until all things are in a satisfactory condition, for I feel sure I can see my way out of all our difficulties. I thought we should have shown a much better result than we have in the past months' working, but with the year a new and better state of things shall be commenced and brought about. I am determined to keep up a large supply of wood until we get a good stock on hand, as three at least of the furnaces are in good condition, while the other two will be fit to work in about a fortnight, when I mean to get some ore from the Hill's lode to go on with, for we shall not be fairly at work on this lode for the next six weeks. Going into the matter of the Hill's lode, I found that about 2000 tons of ore, valued at 4s. 6s. per thousand, every brick to be delivered sound and free of blemish, at 2s. 7d. per thousand, and the balance of the Hill's lode to be delivered at 2s. 7d. per thousand. A draft to meet the next interest due on the bonds shall be for the amount of 50,000 at 21. 2s. per thousand, and the balance of the Hill's lode to be delivered at 2s. 7d. per thousand. I will write you by next mail how I am getting on when I hope to give you a little more cheering news. We have as I am sure a splendid mine, which only wants properly developing, and so far as I am concerned that shall be done. Ore smelted, 239 tons; copper made, 19 tons 13 cwt. 2 qrs."

**PORT PHILLIP AND COLONIAL.**—Cluners, Dec. 29: The quantity of quartz crushed during the four weeks ending December 28 was 2544 tons; produce treated, about 35 tons; total gold obtained 1294 osts. 4 dwts., or an average of 4 dwts. 22 grs.; the receipts were 4855l. 18s. 11s.; payments (including 1088l. paid on firewood, &c., account, and 879l. expended on concentrates) 4960l. 0s. 2d.; loss, 94l. 1s. 3d., which deducted from last month's account of 2077l. 8s. 4d. left an available balance of 1932l. 7s. 11d. The proportion between the two companies 10:90; the Port Phillip Company's account 2474 tons; pyrites treated, about 15 tons; total gold obtained 1294 osts. 4 dwts., or an average of 4 dwts. 22 grs.; the receipts were 4855l. 18s. 11s.; payments (including 1088l. paid on firewood, &c., account, and 879l. expended on concentrates) 4960l. 0s. 2d.; loss, 94l. 1s. 3d., which deducted from last month's account of 2077l. 8s. 4d. left an available balance of 1932l. 7s. 11d. 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We have a large quantity of quartz to crush, so that in another six months I hope to be obtaining remunerative returns. Sinking has not yet been recommenced in the eastern shaft, in consequence of the foundry people failing to supply the necessary connections for the pumps; advice has just come stating that they are building. Captain Ralsbeck reports—"I have the honour to report progress since Dec. 6. No. 2 engine-shaft west has been sunk 14 ft. 6 in. through very hard sandstone; ground easier at present depth of shaft, 195 ft. 6 in. The cross-cut in the south shaft has been driven now a total of 48 ft. 6 in. through sandstone, and the ground poor in consequence. We have stopped for the present, and recommenced sinking at 61 ft. 6 in. touched leaders of quartz dipping west; present depth, 69 ft. Another shaft has been sunk 236 ft. south of No. 2 engine-shaft to a depth of 18 ft.; in the same line a large body of stone has been struck, but at present value not known. Mr. Lamb also states—"From what we can judge of the mine I have every confidence that by the time the batteries and winding-engine are erected we shall be in a position to commence working at a profit."

**AUSTRALIAN UNITED.**—Mr. Kitto (Fryerstown, Jan. 1) writes—"The water is entirely taken from the central mine, after some difficulty, in consequence of a large accumulation of sand around the pumps. Two months ago will, I hope, be sufficient to test the deep gutter at this mine, and satisfy the company as to its value."

**YORK PENINSULA.**—The directors have received advice from the committee at Adelaide, with reports from the Karilla Mine, dated Jan. 1. Capt. Anthony, in reviewing what has been done at the mine, states—"The further development of the mine, both east of Hall's shaft at the 45 and 55, and west of Deble's shaft at the 25 and 15, gives the mine a large body of stone in both these directions, without any loss of decline; also that there is reason to expect greater improvement in depth, and of such character as will render it a paying mine. It must, however, be borne in mind that it is not possible to bring the property into a profitable condition on such small outlay for working expenses." Owing to the small amount of funds remaining at the disposal of the committee, they had instructed Capt. Anthony to confine his attention to the raising of as much ore as possible for immediate sale until they should receive further advice from the board; 20 tons of ore, averaging 15 per cent. for copper, raised chiefly in driving the 25 west from Deble's shaft, had been sold, and realised 156l. 5s. 11d.

**ENGLISH AND AUSTRALIAN.**—The stock of coal at Port Adelaide (Jan. 3) was about 1000 tons. There were eight furnaces at work at Port Adelaide—three smelting, four roasting, and one refinery. At date of advice 255 tons of copper were in course of shipment.

**SCOTTISH AUSTRALIAN.**—The directors have received advice from Sydney, dated Dec. 29, with reports from the Lambton Colliery to the 26th. The monthly output not being completed, the return of sales of coal for that month had not been made up, but up to the 23d they amounted to 6134 tons.

#### ENGLISH AND AUSTRALIAN COPPER COMPANY.

The general meeting is to be held on Feb. 28. The report to be submitted states that the gross quantity of ore, regulus, precipitate and rough copper received from various mines from July 1, 1870, to June 30, 1871, has been 5411 tons, against 3740 tons the previous year; ore, regulus, and precipitate smelted at the Port Adelaide Smelting Works 5281 tons, against 3125; copper made at the Port Adelaide Smelting Works 1153 tons, against 1237; copper shipped from South Australia during the year ending June 30, 1871, 1315 tons, against 1319. The supplies of ore show a considerable increase over those of the previous year. This increase manifested itself particularly in the second half of the year, being nearly sufficient to keep all the furnaces in full work at Port Adelaide. The Burra Burra Mine had not contributed so much to these supplies as had been expected, owing to the non-completion of the machinery for dressing the ore, which, however, was being pushed forward. The directors regret to announce the death of their manager at Adelaide, Mr. James Hamilton, who filled the position for 17 years, having entered the company's service in June, 1854. He is succeeded by Mr. K. Cooke, who has filled the position of sub-manager for some years, and who has shown an amount of ability and energy which fully justifies the directors in their choice.

The amount paid for interest in Australia during the past year has been extremely heavy—32,977. 7s. 11d. This has arisen from the fact that the cost of the new works in New South Wales and the completion of the wharf have necessitated a large loan from the bank at colonial rates of interest. It appears to the board that the time has arrived to carry into effect the resolutions expressed at the special meeting of Oct. 6, 1870, who, therefore, propose to issue 25,000l. in debentures, bearing interest at 8 per cent., with a sinking fund, so as to extinguish the same in a given number of years. This will involve no further charge against the profits of the company, but will merely have the effect of transferring to the debenture-holders the amount now paid to the bank for interest, and at the same time provide for paying off the debentures in a given number of years, when the freehold wharf and works will be cleared from all incumbrance. The balance at credit of the reserve fund on June 30—5692l. 4s. 8d.—has since been augmented by the half-year's interest to Dec. 31, 1871, 16s. 11d.; and, with the proposed addition of 875l., being 10 per cent. on the dividend to be declared, will amount to 6587l. 1s. 7d.—secured by copper warrants. The profit and loss account for the year—July 1, 1870, to June 30, 1871—shows a balance to the credit of 15,901l. 1s. 8d., to which has to be added 3411l. 19s. 6d., balance at credit of profit and loss on July 1, 1870—making a total of 16,125l. 12s. 2d. Out of this amount the directors propose to declare a dividend of 2s. 6d. per share, and to carry the usual 10 per cent. thereon to the reserve fund, leaving 6510l. 12s. 2d. to be carried forward.

The price of Burra Burra copper in February, 1871, when the last annual meeting was held, was quoted at 72s. to 74s. per ton. In May it fell to 71s. per ton; but in June an improvement began, which continued through the remainder of the year, until, in January, it reached 97l. 10s. per ton. This improvement is founded upon diminished stocks, short supplies from Chili, and active consumption.

The stocks of copper in London, Liverpool, Swansea, and Havre, for the last three years, are thus estimated:—Jan. 1, 1872, 18,500 tons; Jan. 1, 1871, 25,500; Jan. 1, 1870, 20,000 tons. The exports from Chili for the following years are as follows:—1871, 46,750 tons; 1870, 62,800; 1869, 55,400; 1867, 50,000 tons. Home consumption has been very large throughout the year, while the exports of copper exceed those of the preceding year by 2400 tons, notwithstanding a falling-off in the shipments to India and France. The total stocks of copper in London, Liverpool, Swansea, and Havre were, on Jan. 1, 1871, 25,500 tons; Jan. 1, 1872, 18,500 tons—showing a steady and striking rate of consumption very far beyond the rate of supply.

The directors think they may congratulate the proprietors on the present satisfactory state of affairs, which they have every reason to believe will not only continue, but be attended with increasing prosperity.

#### ALL-Y-CRIB SILVER-LEAD MINE—SPECIAL REPORT.

Feb. 14.—It would be superfluous to refer to the position of this property; I, therefore, commence with the surface operations. At surface I found a crusher ample for present work, estimating a certain modification of the dressing floors. A large pile of ore on the floor for dressing was commenced with during my visit, this being exclusive of a considerable quantity of a better class lying at the upper floors, ready for carting to the crusher. In my last report I mentioned parallel lodes opened from surface to a considerable extent, and now, continuing my views of the same, together with the ore found in the refuse, I recommend bearing the level, in order not only to search for the residue deposit, but to achieve a knowledge of those indications upon which the former workers acted. Underground operations: A deep adit is extended west through old All-y-Crib, which proved to be enormously rich, and which by the dialling becomes a most important point at this juncture. It reaches within 16 fms. of the level driving towards it from the level of the engine-shaft, wherefrom, when effected, all the ore can be discharged through it direct to the dressing floors, at an enormous saving.—Deep Workings on the Lode, 40 fm. level, Engine-Shaft: From this point we follow the level driving east towards the deep adit, which must be only estimated as intercommunicating work to unite it with the deep adit, but the importance of which cannot be over estimated.—Lode, and its Prospective Issue: Here, the local dip of the lode appears to be east; and, judging from the peculiarities of its upward course under the shaft, I consider it likely to make in a large return of ore, as it is now seen it will give 3 tons of lead ore per ton of silver; this speaks well for the bottom part of the mine, both as to quality and quantity.—20 fm. Level: In this level, driving west of shaft, in which I closely examined the lode now standing (3½ fms.), and cut into at the end of the shaft, where it will produce 3 tons of ore per fathom; this lode at the present end extended 22 fathoms. The only section of the lode appearing at the end of the shaft, 20 fm. level, in the end the lode appears to be the same value. The 20 fm. level east runs to a considerable fathomage, and has passed through a rich source of ore, producing on an average from 3 to 4 tons per fathom. The sinking of a winze from this level for ventilation has suspended this end for the present; this winze is down 5 fms. below this level, the lode in which, as far as length of this level is 22 fms. west, the drive of which is characterised by several pipes of ore; and, taking an estimate of the existing promise of this part of the operations, there is in a slope 5 fms. above the back of the level a lode with 4 tons of ore per fathom, which would forecast very large expectations. (Sinking), both in paying quantities. This auriferous combination I consider very encouraging.—Cauter Lode: This is one of the most important mineral features of the mine. I do not shrink from saying that it is one of the most successful in the first instance the labour should be drafted from the winze operations, and appropriated to the cauter lode, so as to push it with dispatch to the increasing that it will be one of the crowning advantages of the under-taking. I particularly indicate as a course that should be promptly followed. In the Priority, and proximity from the local mineral strata feature of All-y-Crib, together with the system of economy exhibited in the workings, this mine must be a great success.—THOS. GLANVILLE.

**COLLECTIVE ASSURANCE.**—The "Royal Belge" Life and Accident Assurance Company are establishing an English branch, solely for the purpose of collective assurance—that is to say, an assurance combining the work with an ordinary sick fund arrangement. The proposition to deduct the premium from the men's wages would be quite inadmissible in this country, and a man 25 years old and receiving 21s. per week would secure 127l. to his family in case of his death through accident whilst at work, and a weekly permanent disablement whilst at work respectively. The reliance to be placed upon the character of this company depends entirely upon the figures contained in these tables of premiums. As soon as we have had an opportunity of examining these we will refer more fully to the subject.

**LONDON GENERAL OMNIBUS COMPANY.**—The traffic receipts for the week ending February 18 were 8906l. 12s.



## IMPROVED VALVES AND TAPS, FOR WATER, STEAM, GAS, ETC., Made by MATHER AND PLATT, SALFORD IRONWORKS, MANCHESTER.

ILLUSTRATED SHEET, WITH PRICES, CAN BE HAD ON APPLICATION.

AWARDED TWENTY GOLD AND SILVER FIRST-CLASS PRIZE MEDALS.

IMMENSE SAVING OF LABOUR

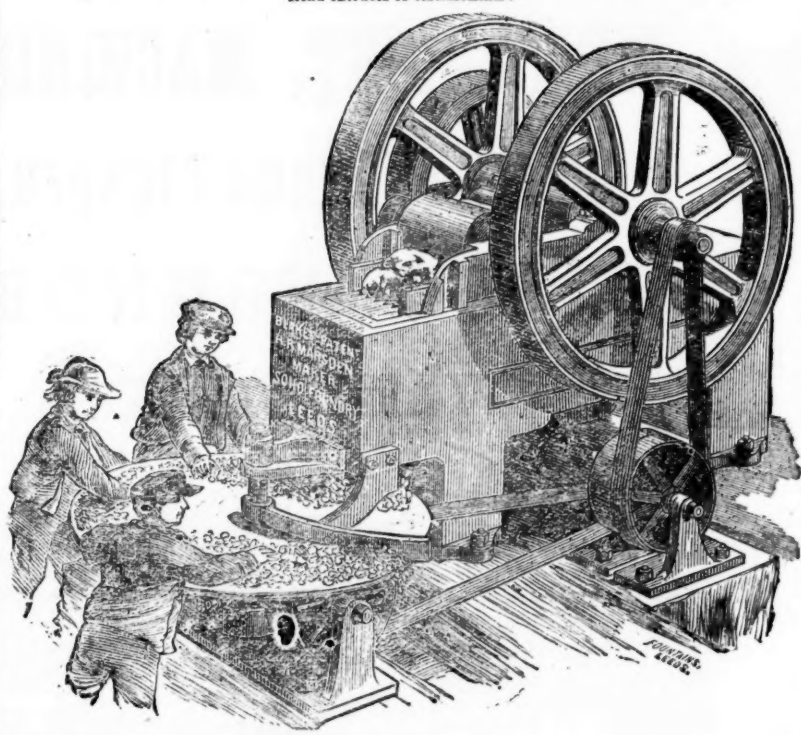
TO MINERS, IRONMASTERS, MANUFACTURING CHEMISTS, RAILWAY COMPANIES, EMERY AND FLINT GRINDERS, MCADAM ROAD MAKERS, &c., &c.

## BLAKE'S PATENT STONE BREAKER, OR ORE-CRUSHING MACHINE,

FOR REDUCING TO SMALL FRAGMENTS ROCKS, ORES, AND MINERALS OF EVERY KIND.

This is the only machine that has proved a success. This machine was shown in full operation at the Royal Agricultural Society's Show at Manchester, and at the Highland Agricultural Society's Show at Edinburgh, where it broke 1½ ton of the hardest trap or whinstone in eight minutes, and was AWARDED TWO FIRST-CLASS SILVER MEDALS. It has also just received a SPECIAL GOLD MEDAL at Santiago, Chili.

It is rapidly making its way to all parts of the globe, being now in profitable use in California, Washoe, Lake Superior, Australia, Cuba, Chili, Brazil, and throughout the United States and England. Read extracts of testimonials:—



For illustrated catalogue, circulars, and testimonials, apply to—

**H. R. MARSDEN, SOHO FOUNDRY,  
MEADOW LANE, LEEDS,  
ONLY MAKER IN THE UNITED KINGDOM.**

## THE DON ECONOMIC LUBRICATING OIL IS 40 PER CENT. CHEAPER THAN THE ORDINARY KINDS.



Mr. ALFRED HEWLETT, of the Wigan Coal and Iron Company, says:—"I have used it for two years, and find it to answer exceedingly well for lubricating purposes."

Mr. NASMYTH, the Inventor of the Steam-Hammer, says:—"I am highly pleased with it as a most effective and durable lubricant, having remarkable properties in the way of setting free bearings which had got set fast."

In face of these and hundreds of other letters to the same effect, it is a MERE WASTE OF MONEY to use the dearer kinds for the engines and machinery of collieries and mines, numbers of which are now using the Don Oil instead.

Any company desirous of trying it before adopting it may do so at our risk and expense. Circulars containing particulars sent on application.

PRICE—By the Ton of 253 Gallons, 2s. 6d. a gallon; by the Cask of 40 Gallons, 2s. 9d.

AGENTS WANTED AT HOME AND ABROAD.

**DUNCAN BROTHERS,  
MANAGERS,  
DON OIL COMPANY, 2, BLOMFIELD STREET, LONDON, E.C.**

## PATENT SELF-LUBRICATIVE STEAM & HYDRAULIC ENGINE PACKING.



This Packing is invaluable to all Users of Steam-Power; it supersedes anything of the kind ever invented; it is now in use in all the Chief Railways and First Firms in this Country and Abroad, and is

THE ONLY PACKING THAT WORKS WITHOUT OIL OR GREASE,

Does not char, is pliable, keeps the rods

COOL, BRIGHT, AND CLEAN,

And lasts longer than any other, thereby

SAVING FULLY 200 PER CENT.

To the User, in oil, labour, and material.

Can be had only from the Agents throughout the country, appointed by

THE SOLE LICENSEES,

[FOR THE LUBRICATIVE PACKING COMPANY],

**HENRY HOUSE AND CO.,  
CATHERINE STREET, CITY ROAD, LONDON, E.C.**

**The Parya Mines Company, Parya Mines, near Bangor, June 6.**—We have had one of your stone breakers in use during the last 12 months, and Capt. Morcom reports most favourably as to its capabilities of crushing the materials to the required size, and its great economy in doing away with manual labour.

For the Parya Mining Company,  
H. R. Marsden, Esq. JAMES WILLIAMS.

**The Van Mining Company (Limited), Van Mines, Llanidloes, Feb. 6, 1871.**—Our machine, a 10 by 7, is now breaking 180 tons of stone for the crusher every 24 hours. I may say, of all our machinery, that for simplicity of construction and dispatch in their work, they are equal to anything in the kingdom, but your stone breaker surpasses them all.

H. R. Marsden, Esq., Leeds.

**Chacewater, Cornwall, Jan. 27, 1869.**—I have great pleasure in stating that the patent stone breaker I bought of you some three years ago for mines in Chili, continues to do its work well, and gives great satisfaction. It crushes the hardest copper ore stone—put it through ½ inch size by horse power—with great ease. I can safely recommend it to all in want of a crusher; can be driven by steam, water, or horse power.

H. R. Marsden, Esq. JAMES PHILLIPS.

**Terras Tin Mining Co. (Limited), near Gram-pound Road, Cornwall, Jan. 1871.**—Blake's patent stone crusher, supplied by you to this company, is a fascination—the wonder and admiration of the neighbourhood. Its simplicity is also surprising. Persons visiting it when not at work have been heard to remark, "This can't be all of the machine." It will crush to a small size from 8 to 10 tons of very hard and tough elvan rock per hour; taking into its leviathan jaws pieces of the hardest rock, weighing 200 lbs. or more, mauling the same into small bits with as much apparent ease and pleasure as does a horse his mouthful of oats. On every 100 tons of the rock crushed by the machine there is a direct saving to the company of not less than £5 over the process of hand labour previously adopted by them, and the indirect saving much more, the machine being ever ready to perform the duties required of it. It breaks the stuff much smaller, and in form so fitted for the stamps, that they will pulverise one-third more in a given time than when performed by hand labour.

JOS. GILBERT MARTIN.

H. R. Marsden, Esq., Leeds.

**Welsh Gold Mining Company, Dolgelly.**—The stone breaker does its work admirably, crushing the hardest stones and quartz. W. DANIEL.

**Oreos, Ireland.**—My crusher does its work most satisfactorily. It will break 10 tons of the hardest copper ore stone per hour.

WM. G. ROBERTS.

**General Fremont's Mines, California.**—The 15 by 7 in. machine effects a saving of the labour of about 30 men, or \$75 per day. The high estimation in which we hold your invention is shown by the fact that Mr. Park has just ordered a third machine for this estate. SILAS WILLIAMS.

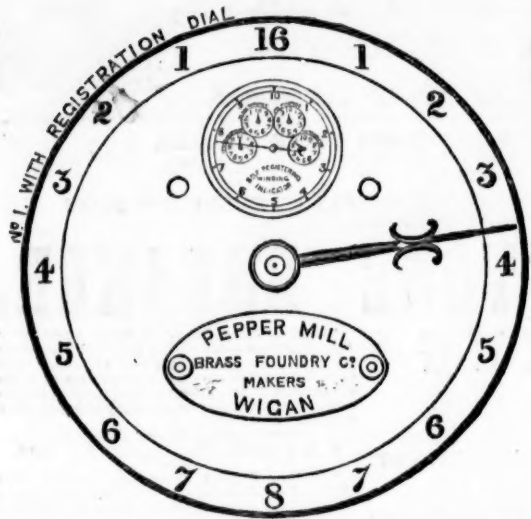
Your stone breaker gives us great satisfaction. We have broken 101 tons of Spanish pyrites with it in seven hours.

EDWARD AARON.

H. R. Marsden, Esq. Weston, near Runcorn.



# PEPPER MILL BRASS FOUNDRY COMPANY, DARLINGTON STREET, WIGAN, COLLIERY FURNISHERS, BRASS FOUNDERS, COPPERSMITHS, & GAS METER MANUFACTURERS.

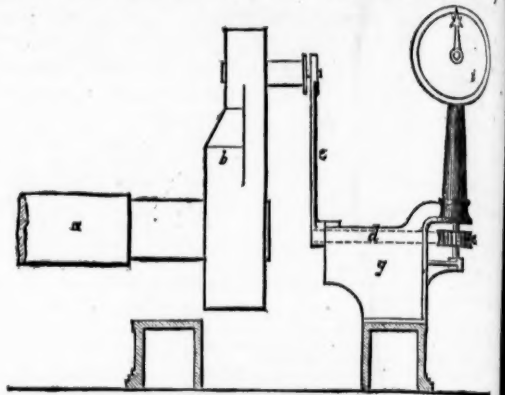


The PEPPER MILL BRASS FOUNDRY COMPANY beg respectfully to invite attention to their IMPROVED SELF-REGISTERING COLLIERY WINDING INDICATOR, which, in addition to its ordinary use of indicating the position of the load in the shaft, registers the number of windings, thus enabling the manager at a glance, and at any moment, to check the return of the banksman or tallyman, by reading off from the dial the number of windings for any stated time.

This Indicator is especially adapted for Water Winding or Pumping. Its indications cannot possibly be tampered with, and unerringly show the number of windings or strokes for any stated period, so that it will at once be seen whether or not the person in charge has been fully discharging his duty.

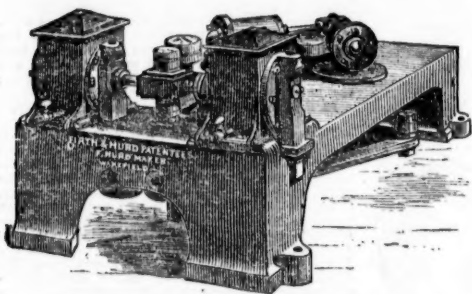
These Winding Indicators are supplied either with or without the Self-registration Dial.

The Pepper Mill Brass Foundry Company will be glad to furnish, on application, sets of drawings illustrative of the simplest and cheapest mode of attaching their indicators to engines of various constructions, either vertical or horizontal.



END ELEVATION  
One mode of attaching Indicator to horizontal engine.

## F. HURD, ENGINEER,



Patent Air-Compressing Engine.

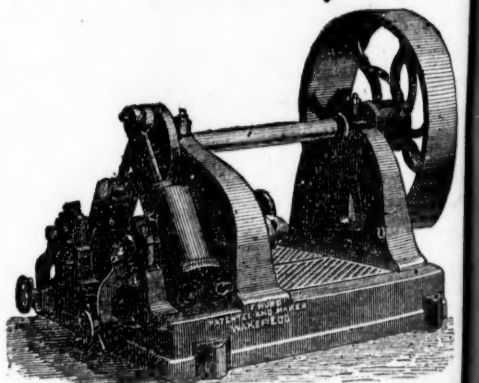
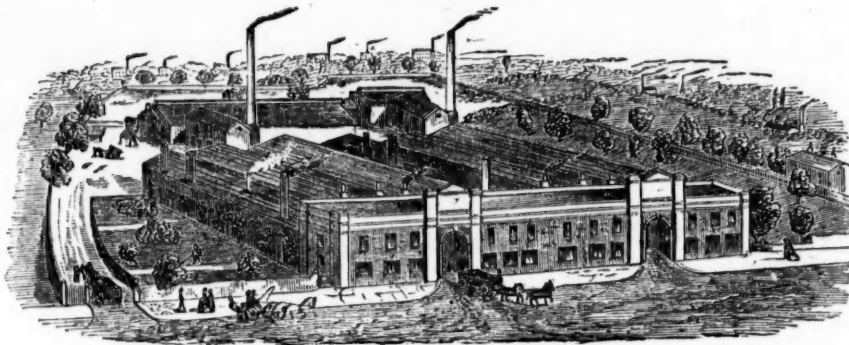
**MANUFACTURER**  
Of PATENT MINING and  
EXCAVATING  
MACHINERY.

FIRTH'S PATENT  
CANNEL  
HUB  
DRESSER.



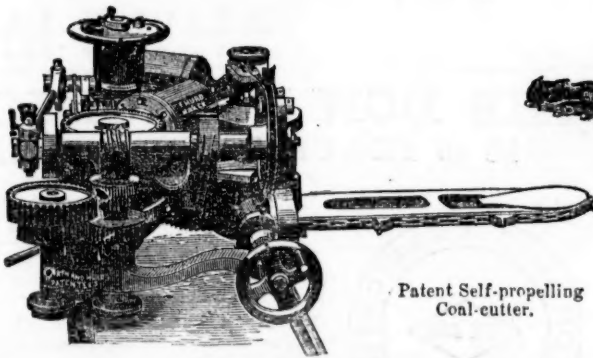
Patent Power, or Hand Straight Work  
Coal-Cutting Machine.

## MILLWRIGHT, MACHINIST, BRASS AND IRON FOUNDER, ALBION FOUNDRY, WAKEFIELD.

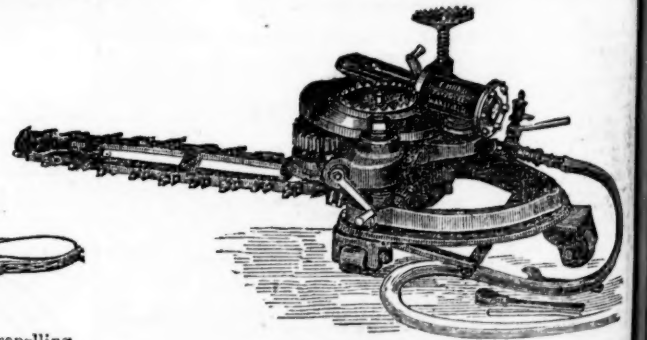


Patent High-speed Reversible Engine, without the  
aid of Tappets, Cams, or Eccentrics. Cylinders  
either fixed or oscillating.

**HYDRAULIC and AIR-  
COMPRESSING  
MACHINERY. Heavy, Light,  
and Ornamental CASTINGS,  
and Patent  
WORSTED MACHINERY.**



Patent Self-propelling  
Coal-cutter.



Patent Power Pillar-and-Stall Work  
Coal-Cutting Machine.

Also, FIRTH'S PATENT ECONOMIC PERMANENT RAILWAY, without the aid of Pins, Bolts, or Wedges, that can be laid by an ordinary labourer with rapidity.

GENERAL CONTRACTOR; and Estimates given for Air-Compressing Machinery and Coal-Cutting Machinery on application.

### THE BURLEIGH ROCK DRILL.



THE BEST AND ONLY PRACTICAL  
DRILL.

IT DOES NOT GET OUT OF ORDER.

SPECIALLY ADAPTED FOR

SINKING AND MINING PURPOSES.

PROGRESSES through Aberdeen granite at

the incredible rate of 10" per minute.

SAVES £5 a day as compared with hand

labour, independent of the enormous saving ef-

fect in the general expenses, such as PUMP-

ING, VENTILATION, INTEREST OF CAPITAL,

&c., from the fact of the "put out" being in-

creased four-fold.

DRILL POINTS.—The saving in steel alone

is considerable. One drill will go through

20 feet of Aberdeen granite without sharp-

ening.

Orders received and executed solely by—

**Messrs. CHAS. BALL & CO.,**  
21, NEW BRIDGE STREET, E.C., LONDON,  
ENGINEERS, CONTRACTORS, AND GENERAL MERCHANTS.

### THE HOWARD SAFETY BOILER,

For STATIONARY and MARINE ENGINES, has the following advantages:—

SAFETY; NO RISK from DANGEROUS EXPLOSION; HIGH-PRESSURE STEAM, with ECONOMY OF FUEL; perfect circulation, and ready means of removing sediment.

Saving of cost and time in repairs; portability, and, for export, great saving in freight.

Patentees and Manufacturers: J. and F. HOWARD, Britannia Iron Works, Bedford.

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ENGINEER, MILLWRIGHT, SMITH, & Co.,  
101, RILEY STREET, BERMONDSEY, S.E.,

MANUFACTURER of IMPROVED HORIZONTAL STEAM ENGINES; HYDRAULIC, WHARF, and WAREHOUSE CRANES;  
PUMPS of all kinds, made in Brass, Copper, or Iron; also HIDE and SKIN SPLITTING MACHINES, and TANNERS'  
TOOLS of every description to order.

BREWERS and DISTILLERS' MACHINERY attended to with the strictest punctuality.  
IMPROVED STEEL TOOTH BARK MILLS, of the most modern description, for Grinding Oak, Valonia, Mimosa, and other Barks.  
CHAIN FOR ALL STOCKS.



# SUPPLEMENT.

# THE MINING JOURNAL,

## Railway and Commercial Gazette.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

EXTRACTS FROM DICKER'S "AUSTRALIAN & LONDON GAZETTE."

LONDON, SATURDAY, FEBRUARY 24, 1872.

### GOLD AND THE GOLD-FIELDS.

THERE have been scarcely any matters of interest during the past month in the mining news of this colony. The great excitement which prevailed in the mining stock and share market some weeks ago, the principal feature of which was the desire to speculate in shares in Sandhurst quartz companies, has entirely disappeared, and the share business which is now conducted is of an ordinary character. The shares in many of the Sandhurst companies have fallen somewhat from the fancy prices which they obtained during the speculative mania, but the prospects of the district are quite equal to what they have been at any former period since the discovery of the gold fields, and as time advances they continue to improve in the most marked manner. According to the most authentic accounts published, nearly all the old companies keep up their large and satisfactory yields, and many of the new companies are proceeding vigorously in sinking and prospecting their mines; although a very large number of new companies have been formed in the district within the past few months, some of them were merely of a speculative character, but others were of a legitimate kind, with *bona fide* prospects, and these are now being carried on with good hopes of ultimate success. Notwithstanding some dullness in the share market, there is not so much difficulty experienced in getting in the calls for the progressive mines as was expected. Both local and metropolitan holders of shares are reported to be paying up with alacrity, and fewer shares are advertised for sale than was the case several months ago. The disposition to support genuine mining ventures on this gold field has no doubt been caused by the extraordinary success which has been achieved latterly on various lines of reef, notably the Garden Gully, Stafford, and Hustler's. It was mentioned in last month's summary that the largest cake of gold ever seen was exhibited in Sandhurst and Melbourne, the weight of which was 2564 oz., with a value of over 10,000*l*. That cake was the result of a fortnight's work of the Great Extended Hustler's Quartz Mining Company, Sandhurst; but the same company, in their next fortnight's work, altogether surpassed their previous success, and turned out a cake weighing no less than 3764 oz., and worth more than 15,000*l*. Such excellent returns from a quartz mine, which may continue to yield gold for many years, give great confidence to the general public of the permanent resources of the old Bendigo district, and, as a consequence, investors have not been slow in laying out their capital, with the view of further discoveries of the great wealth lying in the numerous hidden quartz reefs in the locality. The yield of gold for the month of November in the Bendigo district was over the yield for October, the returns being 23,471 oz. for November, and 22,643 oz. for October. The *Bendigo Advertiser* reports that the yield of gold continues to be most satisfactory.

Considerable attention has been directed for some months past to the question of working the

quartz reefs in the Ballarat district, which has heretofore been known as the most valuable alluvial gold-bearing district in the world. Quartz reefs have been worked in the neighbourhood of Ballarat for years, but although as a rule the different reefs are of substantial thickness, the stone in them has been so thinly impregnated with gold that the great majority of them have been abandoned as unprofitable. Several co-operative companies of working miners have, however, been so successful in obtaining gold in payable quantities as to provide themselves with the means to purchase their own machinery and batteries, the cost of which in some instances amounts to very large sums. The Ballarat correspondent of *The Argus*, in his latest report, says—"There can be no doubt that the desire to test the quartz lodes of Ballarat at greater depths, and in a greater number of places, is rapidly extending, both Melbourne and Geelong capital having found its way lately into the stocks of the reefs on the Dead Horse Ranges. And the expected results of the appeal to the public by the Majestic United, the Sovereign, and one or two smaller companies, is sufficient to justify the opinion that support for other legitimate ventures will be accorded with no unsparing hand, particularly as the ideas of those who are now assisting these ventures are exceedingly moderate. They do not expect ounce nor yet half-ounce stone—they desire to support something that will pay, and that will thereby provide employment for many hundreds of miners. The Majestic United Quartz Company's ground is on the same belt of reefs as some of those that run through the Dead Horse Ranges, and it is known that from the various reefs in the ground they claim, upwards of 50,000 oz. of gold has been taken, though in no instance has the stone been raised from a lower level than 250 feet, and, in very few instances, so deep as that. Then there is the Black-hill Company, which have taken 70,000 oz. out of their claim. These and other kindred facts go to show that it is madness to suppose that in such a small area of ground as these companies' claims were centred all the richest portions of the Ballarat lodes. The real fact is, that we are in profound ignorance as to the nature of our lodes, and the proper places in which we may expect to find the richest shoots of gold. There is nothing but the pick and the gad and gunpowder to help us; and to bring these into the fullest possible play is the only way to find out what we want at the earliest opportunity."

In the returns of the mining registrars and surveyors for the quarter ending 30th September last, some statistics were given respecting 232,136 tons of quartz crushed in different districts. The quantity named did not comprise all the quartz crushed in the colony, but such as the registrars had obtained positive information of. The statistics show that although the people of Sandhurst have for some months past monopolized the greater share of attention to their reefs, the latter do not return one-quarter of the gold obtained from quartz reefs in the colony, and that the reefs in other districts are almost equally deserving of regard, as they are returning large amounts of gold, especially those of Ararat and Ballarat. The following table, omitting fractions, contains the account published respecting the amount of quartz mentioned:—

Mining Districts.	Quantity Crushed.	Total Yield of Gold from Quartz, &c., Crushed.
	Tons.	Oz.
Ballarat ... ..	80,111	22,647
Beechworth ... ..	29,719	14,261
Sandhurst ... ..	40,945	30,962
Maryborough ... ..	12,486	5,110
Castlemaine ... ..	32,138	14,805
Ararat ... ..	26,967	23,451
Gipps Land ... ..	9,738	15,405
Total ... ..	232,136	126,667

The average return per ton of the above in the different districts was as follows:—Ballarat, 5 dwt. 15.69 gr.; Beechworth, 9 dwt. 14.54 gr.; Sandhurst, 15 dwt. 2.97 gr.; Maryborough, 8 dwt. 4.46 gr.; Castlemaine, 9 dwt. 5.06 gr.; Ararat, 17 dwt. 9.45 gr.; Gipps Land, 1 oz. 11 dwt. 15.32 gr.; average all round, 10 dwt. 21.91 gr.

The depth at which quartz reefs fail to be payable has not yet been reached, although it was at one time predicted that they would fail to be payable at a much less depth than they are now worked at profitably. There are at present many mines in the colony with shafts varying from 400 feet to 700 feet deep, and one shaft at Steiglitz has been sunk 866 feet.

The most important fact in the statistics referred to is the announcement that the yield of gold from quartz mines exceeds for the first time the amount received from alluvial mines. The estimated yield for the quarter was 347,678 oz., of which 165,000 oz. was from alluvial diggings, and 181,760 oz. from quartz mines. As the quartz mines are of a much more permanent character than the alluvial ones, this latest return of the yields from the quartz may be taken as an assurance, not only that the auriferous resources of this colony are of as great value as they were ever estimated at, but also that they are certain to furnish employment to large numbers of miners for a much longer period than was ever previously anticipated.

The Stockyard Creek diggings, situate near Port Albert, and close to the most southern point of the Australian continent, may be now classed among the permanent gold fields of the colony. These diggings, which were only discovered some few months ago, are situate in a part of the colony not previously found to be payable as a gold field, and it is thought that very shortly the country between them and the next diggings, some forty or fifty miles inland, will be all found to be of a more or less gold-bearing character. At present the country referred to is an almost impenetrable scrub, in which it is next to impossible for travellers to penetrate; but it is expected that tracks will soon be cut through it, after which prospecting in it will no doubt be energetically carried on. A few days ago, two nuggets, weighing respectively 21 oz. and 32 oz., were obtained in one claim at Stockyard Creek.

The amount of Victorian gold exported up to date for the present year was, according to the Customs returns, 1,404,013 oz. The amount exported to the corresponding period of last year was 1,232,694 oz., or 171,319 oz. less in 1870 than in 1871.



THE MINING JOURNAL,  
RAILWAY AND COMMERCIAL GAZETTE.

LIST of the PRINCIPAL DIVIDENDS PAID in VICTORIA  
DURING the MONTH ending NOV. 4, 1871.

ALLUVIAL.

QUARTZ.

[illegible]

ALLUVIAL

QUARTZ.

QUARTZ—continued.[illegible]

ALLUVIAL.

QUARTZ.

Dividends paid by Alluvial Mining Companies	...	...	...	...	...	£14,920 0 0
Quartz	...	...	...	...	...	89,392 4 2

THE WINTER'S FREEHOLD GOLD MINING COMPANY, LIMITED, BALLARAT, VICTORIA, AUSTRALIA.—*Ballarat, January 1st, 1872.—Mine Report, No. 1 Shaft.*—Since my advice, November 4th, the works to the north-west and north-east have been pushed on, but in consequence of the basaltic rock coming down to within 3 feet of the bottom of the drive (causing a great dip in the gutter), we have had to turn the drive again; this, and the heavy water from the rock, have prevented the ground being opened up so rapidly as could be wished. The drive is now going due north, and an incline has been put down into the dip, or hole, to work out the ground, which is looking at this point. The last mine report states—"The dirt in the incline drive is looking very promising. I got a good prospect of coarse gold out; coarse gold has also been obtained from the deep ground struck to the north-west. You will understand that these remarks refer to the *upper* works, and that we have the main low level 20 feet below, so that there is plenty of levels left to come and go on. The yield of gold this month would have been larger could we have put on some blocking force, but as mentioned in a former report, the works are not sufficiently advanced to employ a large number of hands, and (so far as the surface expenses are concerned) ten blocking parties cost as much as four. By the end of the week we shall be in a position to increase the number of hands, and get in full swing, and I trust with a proportionate return. Considering the amount of wash dirt raised, the gold returns have been very fair. During the Christmas holidays the machinery and boilers were overhauled and put into good repair." *No. 2 Shaft.*—On the 28th December, the tributors in a drive going to the north-east broke into the gutter worked by No. 5 consols, and which is supposed to enter our property at a point about 2000 feet north of our No. 2 shaft; the trial machine washed 7 oz. 19 dwt., which is fairly considered a good return. It is a fortunate thing the tributors have found the gutter, as they were despairing; the yield from the other



EXTRACTS FROM DICKER'S AUSTRALIAN AND LONDON GAZETTE.

parts of the mine being so poor. It will take a month to open up this new ground, the No. 5 consols worked this gutter up to our fence and found it very rich. The No. 1 consols are getting very rich dirt, 40 oz. to the machine, close on the east fence. This gutter has been running nearly north and south, but now gives signs of going west. I forgot to mention in connection with No. 1 shaft, that the No. 4 Hand and Band shaft is rapidly proving the ground to be running south-west, as mentioned on November 4th. I think that for the future our reports will improve by each succeeding mail. The works are stopped during the Christmas holidays.

Winter's Freehold.—No. 1 Shaft.

		oz.	dwt.	gr.	oz.	dwt.	gr.
December 5, 1871.—Yield	...	17	13	0			
" 7 " "	...	16	17	0			
" 9 " "	...	17	17	0			
" 12 " "	...	15	17	0			
" 14 " "	...	26	18	0			
" 17 " "	...	16	2	0			
" 19 " "	...	15	14	0			
" 21 " "	...	13	13	0			
" 23 " "	...	20	2	0			
" 28 " "	...	13	18	0			
" 30 " "	Black Sand.—Yield...	45	5	0			
Works stopped during Xmas.	" 31 " "	31	19	0			

No. 2 Shaft.

December 9, 1871.—Yield	...	5	16	0
" 14 " "	...	3	13	0
" 21 " "	...	5	17	0

257 15 0

15 6 0

Total yield since the last mail returns ... 273 1 0

No. 1 shaft shows an increase of about 32 oz. over last month's yield.

MARINERS' REEF QUARTZ MINING AND CRUSHING COMPANY.—January 1st, 1872.—The shaft work is progressing fairly, as Hampton's report for the month describes, but I expected he would have advanced quicker than he has. All the work, however, is being well done, and the extra time taken up is not, after all, a very serious loss. Mr. Hampton reports 60 feet of cutting down completed for the month, and by deducting 20% balance of contract for surface works from the total shaft expenses, it shows that the total cost per foot for cutting down, including timbering, &c., has been about 4/10s. per foot up to the present. I almost expect it will cost considerably more when we get below the water level, both on account of the pumping expenses and the harder rock which is met with there. The tributors' operations, you will perceive, have not been profitable again, but the prospecting shaft on North Mariner's is going through a fine body of stone, of which Hampton seems to have an excellent opinion. Its gold-bearing character is improving as the depth increases, and this is very encouraging.

MARINERS' REEF QUARTZ MINING AND CRUSHING COMPANY, MARYBOROUGH.—31st December, 1871.—Manager's Report.—Amount due to the company for crushing, Bristol Hill Company, 15/4; sundry others, 6/15s.; Duke and Co. for a piece of shafting, 6/1; total, 27/15s. We owe nothing except for current month. Sherman and Co., during the week, have been timbering up, and also putting in, dividing centre pieces, and boarding up between the pumps and north winding shaft, consequently we have only cut down about five feet. The pumping engine seems to work a great deal better, and I think you will be well pleased with the alterations made. During the month, ending the 23rd instant, the engine shaft has been cut down a further depth of 60 feet, making the depth from shaft top, 180 feet. The ground has been sandstone, with two or three small veins of quartz mining through it, but no gold. We are just below the first plunger flat, and the ground, although sandstone, is getting softer. The east cross-cut has been extended a further distance of 15 feet 6 inches, total from shaft, 163 feet; these men have just finished their contract of 25 feet. The ground is altering a little, and shows indications of stone, and if the air will allow, I think to let them go on as they are for a few days, to see what the change may lead to, and if we think to continue on I will call for tenders. Robson and Co. are still sinking in quartz, which shows a little gold. They have sunk 10 feet this week, making in all 30 feet, and the depth from the surface 150 feet. Steele and Mathewson talk of going into Robinson's old claim and giving it a trial after the holidays.

From Melbourne Argus, January 2nd, 1872.—MARINERS' REEF, MARYBOROUGH.—December 30th.—Engine shaft cut down 60 feet for the month, making depth from surface 180 feet. Ground still fair for working, and some small veins of stone have been met with. Eastern cross-cut extended 15 feet for the month; prospects somewhat improving. Tributors' shaft on North Mariner's sunk to 150 feet from surface, a fair reef showing in the bottom, with a little gold in. The contract is for another 50 feet deeper.

AUSTRALIAN AND NEW ZEALAND DIVIDEND GOLD MINES INVESTMENT COMPANY, LIMITED.

No. 1 SERIES.

No further investments on account of this Series have been made this month. The late excitement in mining stocks is gradually subsiding, and as prices still show a disposition to go still lower, it was thought judicious to refrain from fresh purchases for a week or so longer. The agent, however, anticipates that he will be able to invest the balance of the capital in the course of the next month, January, at reasonable rates. The list stands thus—

TOTAL INVESTMENTS.—No. 1 SERIES.—AUSTRALIAN.

Date of Purchase.	Name and Locality of Company.	Number of Shares.	Rate per Share, including all Costs, Charges, &c.	Total Amount.
1871. Sept. 25	New Moon G. M. Co., Bendigo ...	120	£ s. d. 1 1 1	£ s. d. 126 10 0
Oct. 3	Do. do. ...	100	1 1 1	105 8 4
" 3	Argus Co., Bendigo ...	100	0 17 2 1/2	86 0 10
" 10	Do. do. ...	200	0 17 2 1/2	172 1 8
" 10	Do. do. ...	300	0 19 5	291 5 0
" 3	Central Energetic G. M. Co., Lauriston ...	10	0 10 5	99 14 2
" 31	Do. do. do. do. ...	20	0 14 6	104 10 0
" 31	Do. do. do. do. ...	25	9 6 1	232 12 1
" 3	Victoria Gold Mines Co., Bendigo ...	25	2 10 6	74 7 6
" 5	Do. do. ...	100	2 10 6	297 10 0
" 4	North Specimen Hill G. M. Co., Bendigo ...	400	0 4 10 1/2	371 17 6
" 5	Do. do. do. do. ...	900	0 4 10 1/2	509 5 3
" 7	Do. do. do. do. ...	400	0 4 10 1/2	371 17 6
" 7	Do. do. do. do. ...	400	0 4 10 1/2	371 17 6
Nov. 5	South Moon G. M. Co. (Graham's), Bendigo ...	500	0 6 6	162 10 0
" 21	Hercules Quartz M. Co., Bendigo ...	200	2 1 1	410 16 8
" 21	Rose of Denmark G. M. Co., Bendigo ...	400	0 18 11	378 6 8
" 25	Hope G. M. Co., Wood's Point ...	300	0 15 8	235 0 0
	PURCHASED IN ENGLAND.			
" 21	Mariner's Reef Quartz Mining and Crushing Co., Maryborough ...	500	1 2 3	556 5 0
	Total Investments to date ...			£3,032 3 2

Dividends.—The dividends declared during the month on the No. 1 series of mines, are Rose of Denmark, 6d. per share, and Hope, Wood's Point, 1s. per share, making in the aggregate, with what has already been received, 53/14s., but the dividends this month are from two of the smallest holdings.

INVESTMENTS.—No. 2 SERIES.—NEW ZEALAND.

Date of Purchase.	Name and Locality of Company.	Number of Shares.	Rate per Share, including all Costs, Charges, &c.	Total Amount.
1871. Nov. 3	Caledonian G. M. Co., Thames River ...	3	£ s. d. 132 4 5	£ s. d. 396 13 3
" 3	Do. do. do. ...	1	133 6 8	133 6 8
" 16	Shotover G. M. Co., Thames River ...	600	0 9 5	282 10 0
" 16	Golden Crown G. M. Co., Thames River ...	100	5 11 1	555 8 4
" 16	Albion G. M. Co., Thames River ...	107	7 15 7	832 7 5
" 16	Alburnia G. M. Co., Thames River ...	18	7 15 7	149 0 6
" 16	Do. do. do. ...	50	8 6 8	416 13 4
" 16	Imperial Crown G. M. Co., Thames River ...	16	4 14 5	75 10 8
" 16	Do. do. do. ...	24	5 0 0	120 0 0
" 16	Do. do. do. ...	60	5 11 2	333 10 0
" 16	Prince Imperial G. M. Co., Thames River ...	10	3 1 2	30 11 8
" 16	Do. do. do. ...	89	2 15 7	247 6 11
" 16	Kuranui G. M. Co., Thames River ...	25	1 18 11	48 12 11
" 16	Do. do. do. ...	50	2 4 5	111 0 10
" 16	Do. do. do. ...	140	2 15 7	389 1 8
" 16	Tokatea Coromandel ...	115	4 8 10	510 15 10
" 16	Stamps and Transfers ...			16 10 2
	Total Investments to date ...			£4,640 0 2

Since the investments were made two dividends of 5/ each have been declared in the Caledonian, and the Daily Southern Cross, of 30th November ult., announces that "one is to be declared in a day or two on the Tokatea."

In the same paper the following list of yields are reported for the month:—

	STONE.	GOLD.
	tons cwt. qr.	oz. dwt. gr.
Alburnia Tribute ...	47 0 0	m 124 8 0
Caledonian ...	800 0 0	m 4,224 16 0
Ditto ...	600 0 0	m 6,390 0 0
Golden Crown ...	60 0 0	m 147 15 12
Ditto ...	75 0 0	m 204 11 0
Golden Crown Tribute ...	80 0 0	m 102 16 0
Ditto ditto ...	7 0 0	m 16 6 12
Ditto ditto ...	40 0 0	m 54 4 0
Imperial Crown Tribute ...	17 0 0	m 19 10 0
Ditto ditto ...	30 0 0	m 20 10 0
Kuranui Company ...	300 0 0	m 109 6 0
Ditto ditto ...	300 0 0	m 294 9 0
Shotover ...	24 0 0	m 5 4 0
Shotover Tribute ...	56 0 0	m 39 19 8
Tokatea Coromandel ...	350 0 0	m 1,202 18 0

m melted gold.

Caledonian.—After these shares were purchased quotations rose for a few days, when they suddenly began to recede, and at the time the mail left were to be bought much lower. A kind of panic took place, but from private advices we are inclined to think it nothing more than one of those unreasonable fluctuations which are constantly occurring in Thames mining stocks. The mine has paid 10/ per share during the month, and 188/ per share since last February. The following is the latest information from the Southern Cross with reference to this mine:—

"I made a more minute examination of the main run of gold this morning, and can fully confirm the remarks of yesterday. There is a splendid show of gold, which, although not quite so long, yet is broader, and, as Mr. Dewar of Tookeys said, stronger also, running in many places from the hanging wall to the foot; while in some places there are some good large blocks which, when taken out, will be productive of much gold. Directly over the winze there is a strong seam of gold visible, while on the top, standing between the winze and the cross-cut, there is also a good show. This latter block has not been touched for a day or so, and as the roof is very treacherous I did not give it that examination I should like to have done, yet sufficient to see that gold was in the face. In the other part of the mine I have nothing new to report."

Later News.—"An examination of the main face proves it to be richer than for many days past; gold showing high up in the face, and also directly over the winze."

Shotover.—This has been one of the richest mines on the Thames Gold Field, and there is a block of rich solid ground on which the battery is erected, and which cannot therefore be taken out at present. This of itself would more than pay back the present price of shares. They are engaged making explorations and a considerable improvement may take place any day. It is not a very large claim, and is nearly surrounded by the Kuranui property.

Kuranui.—The area of this mine is larger than most of the Thames properties, being 19 acres, and the Company has a battery of 47 heads. Its position is good, bounding the two sides of the Shotover claim on the direct line of the lode, and adjoins also the Long Drive, which has been a good paying mine. The yield for the month was over 400 oz. of gold.

The Golden Crown.—This is a very good purchase, the shares being bought low. The mine is improving, over 500 oz. of gold being obtained for the month. By private advices we learn that the No. 2 lode is yielding good paying stuff.

The Alburnia.—The area of this venture is also large, viz., 30 acres, and there is a battery of 20 heads. The tribute party obtained very nearly 3 oz. per ton this month. The latest news to hand states the Alburnia is looking well, but the water is getting scarce for the battery.

The Imperial Crown.—This mine is an extensive one for the Thames River, viz., 16 acres. It adjoins Tookeys and the Golden Crown. The largest shaft on the gold field is being sunk upon it, the machinery is very first class, and the Company provided with abundance of capital to carry out the large permanent works in hand.

Prince Imperial.—Area, 15 acres. The mine adjoins the Imperial Crown. A very rich spur indeed was struck some time ago in the ground, but although not yet a dividend mine, an improvement in its prospects may take place any day.

The Albion.—This mine is an amalgamation of the Charleston and Poverty and Kelly's claims. They are at present engaged sinking the shaft, and the works are being vigorously forwarded. It is spoken of as being one of the most promising claims on the gold field. It directly adjoins the Caledonian and Tookeys. Shares are rising in value.

No. 3 SERIES.

The first remittance had reached the colony, but for like reasons stated in respect to No. 1 series no investments had yet been made. The agent anticipated being able to make investments at prices favourable for the Company before the departure of the next mail.



## EXTRACTS FROM DICKER'S AUSTRALIAN AND LONDON GAZETTE.

## MARKET AND DIVIDENDS FOR THE YEAR 1871.

THE anticipation expressed in our last annual report that a larger and more prosperous business would be done in the coming year, has been fully realized. The transactions effected during 1871 have been largely in excess of those of 1870, and a comparison of opening and closing quotations will disclose a considerable advance in the market value of a good number of stocks. Three leading features may be noted in a general retrospect of the business done in the stock and share market during the year now drawing to a close. Firstly, a steady and considerable rise in the price of debentures and other favourite investment stocks; secondly, a decreased business in alluvial mining companies; and thirdly, a more than corresponding increase of business in quartz mining companies, and the decreased number of transactions in alluvial mining companies must naturally be looked for with the working out of the rich main alluvial leads. There have, however, been several spurts of improved business in some of the Ballarat companies, the Band and Albion Consols especially having had considerable attention, owing to increased yields. This company's shares, which stood at 3*l*. 14*s*. last December, are still worth about 2*l*. 18*s*. 6*d*. after paying dividends during the year amounting to 2*l*. 0*s*. 6*d*. per share, or 45,461*l*. 5*s*. in all. The large increase of business in quartz companies rose naturally out of the improved mining developments of several companies, which had long been working at increased depths on several of the main lines of reef at Sandhurst, especially the Hustler's, the Garden Gully, the Victoria, and the Stafford. Prices rose gradually for some time, until the splendid yields and prospects of some of the companies, and the considerable profits which had been realized by a few investors and speculators, attracted public attention, and all at once there was quite a rush of buyers; good stocks advanced enormously in value, and shares in claims at all near the favourites, rose from a nominal value of a few pence per share to more than as many shillings, and in some cases to even higher rates. Many who had hitherto derided all investments of money in mining undertakings, were at last induced to join the throng, and risk their capital in this direction. So great was the anxiety to obtain shares, that for about two months it might have been fairly termed a mining mania. Speculators from Melbourne, Ballarat, and other districts, repaired to Sandhurst, anxious to share in the profits of the El Dorado; special trains were put on between Melbourne and Sandhurst, and so keen was the excitement, that the destruction by fire of the Beehive Chambers, in which were located the offices of many of the brokers and managers of mining companies, and by which much scrip and many share registers were burnt, scarcely checked business for an hour.

The excitement culminated about the middle of October: numbers dealing in stocks of which they knew nothing beyond the name and price, and which they purchased in the hope of re-selling at a profit within the twenty-four hours. The usual results of such eager speculation followed. Numerous new companies, north and south, and in some cases miles off the gold-getting claims, were floated as quickly as the very simple preliminaries necessary could be arranged, and the market was flooded with scrip. Since then the excitement has abated, and prices have given way, though they still close at rates showing considerable advances in value for most Sandhurst companies, and in some cases the improved mining prospects fairly justify the enhanced rates. Stringer's Creek (Gipps Land), Pleasant Creek, Clunes, Daylesford, and other quartz-mining districts, have made good progress, and altogether the prospects of quartz-mining are favourable. As will be seen by the particulars below, mining dividends sum up to an amount considerably in excess of those for several years past. Among the more noteworthy, in addition to that of the Band and Albion Consols, already mentioned, and which comes third in amount for the year, we note the Long Tunnel, 108,000*l*.; the North Cross Reef, 105,750*l*.; the New North Clunes, 44,204*l*.; the Extended Hustler's Tribute, 38,500*l*.; and the North Garden Gully, 24,500*l*. That of the Extended Hustler's Tribute is perhaps the most remarkable of the whole, being the result of only about six weeks' raising and crushing.

In continuation of the summaries of dividends by registered public companies, which we have given for the last four years, we append the following tables, again remarking that they are, at least as regards mines, only an approximate amount, as in many cases there are no public notifications of dividends even by the registered companies, while the profits distributed among private claimholders are not at all included.

The total dividends for the year 1871 stand thus:—

Public companies other than mining	...	...	£281,325
Quartz-mining companies	...	...	690,335
Alluvial mining companies	...	...	241,665
Aggregate mining dividends	...	...	932,000

Total dividends ... .. £1,213,325

The above totals show a large increase in mining dividends, while those from public companies other than mining are the same as last year within a few hundred pounds. In more minute detail, we note, for comparison, the amounts derived from public companies other than mining during the past three years. The figures stand thus:—

	1869.	1870.	1871.
Banks ... ..	£128,917	£151,855	£172,000
Railway, M. & H. B.	37,429	37,429	26,735
Gas companies	32,083	33,746	35,090
Insurance companies	44,252	37,024	34,400
Miscellaneous	8,554	20,612	12,500
Total ... ..	£221,235	£280,666	£281,325

It will be observed that the past year shows a further falling off in insurance, and a large reduction in railway and miscellaneous dividends, as compared with the previous year, while banks and gas show an increase. The bank dividends, however, were still below those of 1869 and 1868, the Commercial not having yet resumed dividend paying, while the amount distributed by the New South Wales in Victoria was below previous statements.

The following table shows the mining dividends for the past three years, distinguishing quartz and alluvial:—

Year.	Quartz Mines.	Alluvial Mines.	Total Mining Dividends.
1869 ... ..	£295,730	£352,400	£648,130
1870 ... ..	470,812	232,201	703,013
1871 ... ..	690,335	241,665	932,000

It will be noted that the large rate of increase in the dividends from quartz companies, to which we drew attention in previous reports, still continues, while the amount from alluvial mines shows, for the first time for three years, a slight increase. It is satisfactory to observe that the total mining dividends are not only greatly in excess of those for the past two years, as shown by the table, but they also exceed those of the year 1868 by the large amount of 135,050*l*. The districts from which last year's mining dividends were derived rank as under in order of amount distributed:—

Sandhurst ... ..	£375,605	14	6
Ballarat ... ..	133,968	18	0
Gipps Land ... ..	116,150	0	0
Pleasant Creek ... ..	107,390	0	0
Smythesdale ... ..	73,468	5	0
Clunes ... ..	46,604	0	0
Maryborough ... ..	28,177	7	6
Daylesford ... ..	21,674	10	0
Lauriston and Taradale	10,481	5	0
Wood's Point ... ..	9430	0	0
Beechworth ... ..	4800	0	0
Steiglitz ... ..	3100	0	0
Egerton ... ..	775	0	0
Evelyn ... ..	375	0	0

Comparing now the aggregate totals from registered public companies (mining included) for the past four years, we note that the dividends of 1871 are considerably in excess of those of 1868, which previously stood highest on the list:—

	1868.	1869.	1870.	1871.
Total Dividends	£1,096,271	£969,964	£983,769	£1,213,325

—Reporter, Melbourne Argus.

## LIST OF DIVIDENDS FROM QUARTZ MINES.

Extracted from DICKER'S MONTHLY AUSTRALIAN AND LONDON GAZETTE.

	£	s.	d.
4 weeks ending June 18, 1870	26,044	15	0
" " July 16, "	29,246	14	0
" " Aug. 13, "	34,471	10	0
" " Sept. 10, "	34,464	8	0
" " Oct. 8, "	34,875	4	0
" " Nov. 5, "	39,372	12	0
" " Dec. 3, "	41,682	14	0
" " Dec. 31, "	39,833	10	0
" " Jan. 28, 1871*	27,456	14	0
" " Feb. 25, "	43,816	14	0
" " Mar. 25, "	43,478	7	8
" " April 22, "	38,324	5	2
" " May 19, "	41,853	8	0
" " June 16, "	51,046	14	0
" " July 15, "	62,697	17	8
" " Aug. 11, "	63,290	11	11
" " Sept. 9, "	52,444	10	0
" " Oct. 7, "	70,861	13	0
" " Nov. 4, "	66,461	6	0
" " Dec. 2, "	50,336	7	0
" " Dec. 30, "	89,392	4	2

\* The holiday month.

The present month's aggregate of dividends is the largest ever declared in Victoria—a single Company alone has declared dividends amounting to 29,400*l*. We remember a third share of this Mine being sold for 80*l*. a few years ago, the fortunate purchaser getting back the amount of his investment the very first week—*Ed. A. & L. Gazette*.

## AUSTRALIAN &amp; NEW ZEALAND DIVIDEND GOLD MINES INVESTMENT CO., (Limited),

A small parcel of Shares can be obtained in each of No. 1 and No. 2 Series at 5*s*. premium. Apply at 4, Royal Exchange Avenue, E.C.

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## AUSTRALIAN AND NEW ZEALAND DIVIDEND PAYING AND PROGRESSIVE MINES.—

Full and reliable information, with list of sound mines for investment, may be obtained on application to Thomas Dicker (late Editor and Proprietor of "Mining Record," Melbourne) 4, Royal Exchange Avenue, London E.C.

## AUSTRALIAN GOLD MINES

The paying character of Australian Gold Mines has never before reached so high a point since the first discovery of gold in Australia, nor has the condition of mining affairs in Victoria certainly been more healthy than at the present moment. The test of average shows that gold mining is at least as profitable as any, and far more so than most other kinds of industry, and ready the exports of gold from Australia for the year 1871 are considerably in excess of the returns for same period of 1870. Persons desirous of investing in Australian New Zealand mining ventures obtain the fullest information by applying to 4, Royal Exchange Avenue, London, E.C.

## DICKER'S AUSTRALIAN AND LONDON MINING AGENCY.

4, ROYAL EXCHANGE AVENUE, LONDON

List of Shares for sale in Australia and New Zealand Mines, under liability.

Mariner's Reef (Gold) Quartz Mining and Crushing Company.

The Winter's Freehold Gold Mining Company, Limited, Ballarat, Victoria.

Australian and New Zealand Dividend Gold Mining Investment Company, Limited.

Golden Crown Gold Mining Company, Limited, Thames Auckland, N.Z.

The London and Thames N.Z., Golden Crown Company, Limited.

The Imperial Crown Gold Mining Company, Limited, River, Auckland, N.Z.